North Irish Sea Array Windfarm Ltd.

NISA Maritime Usage Licence Application for Site Investigation Works

Supporting Information for Screening for Appropriate Assessment

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List of Abbreviations

AA	Appropriate Assessment
ADCP	Acoustic Doppler Current Profiler
AIMU	Assessment of Impact on the Maritime Usage
AIS	Automatic Identification System
API	American Petroleum Institute
BH	Borehole
BIM	Bord Iascaigh Mhara
BSF	Below Seafloor
CESS	Cumulative Effects Spatial Scope
CETS	Cumulative Effects Temporal Scope
CPOD	Continuous Porpoise Detectors
CO	Conservation Objective
COMREG	Commission for Communications Regulation
CPT	Cone Penetration Test
DAFM	Department of Agriculture, Food, and the Marine
DAHG	Department of Arts, Heritage and the Gaeltacht
DCCAE	Department of Communications, Climate Action & Environment
DEHLG	Department of Environment, Heritage and Local Government
DHPLG	Department of Housing, Planning and Local Government
DHLGH	Department of Housing, Local Government and Heritage
DTTAS	Department of Transport, Tourism and Sport
EC	European Commission
EDR	Effective Deterrence Range
EEZ	Exclusive Economic Zone
EIAR	Environmental Impact Assessment Report
EMODnet	The European Marine Observation and Data Network
EPA	Environmental Protection Agency
EPS	European Protected Species
EU	European Union
FCS	Favourable Conservation Status
FLO	Fisheries Liaison Officer
GDG	Gavin and Doherty Geosolutions Ltd.
GSI	Geological Survey of Ireland
IMO	International Maritime Organization
INFOMAR	Integrated Mapping for the Sustainable Development of Ireland's Marine Resource
IROPI	Imperative Reasons of Overriding Public Interest
ISO	International Organization for Standardization
ITM	Irish Transverse Mercator

IWDDS	Interactive Web Data Delivery System
JNCC	Joint Nature Conservation Committee
LiDAR	Light Detection and Ranging
LSE	Likely Significant Effects
MAP	Maritime Area Planning
MARPOL	The International Convention for the Prevention of Pollution from Ships
MBES	Multibeam echosounder
MI	Marine Institute
MAP	Maritime Area Planning Act 2021
MARA	Maritime Area Regulatory Authority
MU	Management Unit
MUL	Maritime Usage Licence
NIS	Natura Impact Statement
NISA	North Irish Sea Array
NM	Nautical Mile
NMS	National Monuments Database
NPWS	National Parks and Wildlife Service
NRW	Natural Resources Wales
OPR	Office for Planning Regulation
OWF	Offshore Wind Farm
PTS	Permanent Threshold Shift
QI	Qualifying Interests
SAC	Special Areas of Conservation
SBI	Sub Bottom Imager
SBP	Sub Bottom Profiler
SCI	Special Conservation Interest
SPA	Special Protection Areas
SPL	Sound Pressure Level
SPR	Source Pathway Receptor
SSS	Side Scan Sonar
TTS	Temporary Threshold Shift
UK	United Kingdom
USBL	Ultra -Short Baseline
UXO	Unexploded Ordnance
VC	Vibrocore
WWTP	Wastewater Treatment Plant
ZOI	Zone of Influence

Glossary of Terms

Acoustic Doppler Current Profiler (ADCP)	An Acoustic Doppler Current Profiler is a hydroacoustic current meter similar to a sonar, used to measure water current velocities over a depth range using the Doppler effect of sound waves scattered back from particles within the water column.
Appropriate Assessment (AA)	An Appropriate Assessment (AA) is an assessment of the potential adverse effects of a plan or project (in combination with other plans or projects) on Special Areas of Conservation and Special Protection Areas. These Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are protected by both National and European Law.
Aquaculture Sites	Aquaculture sites include shellfish, finfish and seaweed production areas as monitored for licensing purposes.
Array Investigation Area	Area where site investigations will take place to determine the suitability of that area as an offshore wind farm
Benthic Ecology	Benthic ecology is the study of organisms that make up bottom communities (sediments, seagrass communities and rock outcrops) in lakes, streams, estuaries and oceans, to determine environmental health and conduct environmental appraisals.
Coastal Lagoons	Lagoons are expanses of coastal salt water, of varying salinity, which are wholly or partially separated from the sea by sand banks or shingle, or less frequently, by rocks.
Designated Shellfish Waters	Designated Shellfish Waters under the European Union Shellfish Waters Directive are sites designed to protect the aquatic habitat of bivalve and gastropod molluscs, including oysters, mussels, cockles, scallops and clams.
Dredge Fishing	A fishing dredge, also known as a scallop dredge or oyster dredge, is type of fishing gear which is towed along the bottom of the sea by a fishing boat in order to collect a targeted bottom-dwelling species.
Drift Lines	Drift lines occur on sandy or shingle substrate at the upper part of the strand, around the high tide mark. Water-borne material including organic matter is deposited on the shore and provides nutrients and a seed source for vegetation.
Ecology	Ecology is a branch of biology concerning the spatial and temporal patterns of the distribution and abundance of organisms, including the causes and consequences.
Environmental Receptors	Environmental receptors are any organism, habitat or natural resource which could be adversely affected by an activity.
Estuaries	Estuaries are coastal inlets with a significant freshwater influence. They are diverse, dynamic habitats that help maintain the health of coastal ecosystems. They are a significant resource for bird and mammal species for feeding, breeding, and resting, and depending on their geomorphology and hydrology support a mosaic of other habitats, including Annex I habitats such as mudflats.

Favourable Conservation Status	The EU Habitats Directive requires EU Member States to achieve FCS of natural habitats and species, defined with respect to species by Article 1 (i) of the Directive as below: "conservation status will be taken as 'favourable' when: population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis."
Fish Nursery Grounds	Nursery grounds are habitats that enhance the growth and survival of juvenile fish.
Fish Spawning Grounds	Spawning grounds are areas where fish congregate to lay and fertilise their eggs.
Geophysical Surveys	Geophysical surveys are ground-based physical sensing techniques that produce a detail image or map of an area. Ground-based surveys may include: Seismic surveys - vibrations are recorded with geophones to provide information about the properties of rocks.
Geotechnical investigation and evaluation	Geotechnical investigation and evaluation include methods to acquire and evaluate subsurface information, including drilling and sampling, laboratory testing, cone penetration testing, and pressure meter testing.
Grab Samples	A grab sample is a sample of sediment taken from the seabed.
Habitats Directive	Adopted in 1992, the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora aims to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements. It forms the cornerstone of Europe's nature conservation policy with the Birds Directive and establishes the EU wide Natura 2000 ecological network of protected areas, safeguarded against potentially damaging developments.
LiDAR	LiDAR is a method for measuring distances by illuminating the target with laser light and measuring the reflection with a sensor. Differences in laser return times and wavelengths can then be used to make digital 3-D representations of the target. It has terrestrial, airborne, and mobile applications.
Magnetometer	A magnetometer is a device that measures magnetism—the direction, strength, or relative change of a magnetic field at a particular location.
Maritime Usage Licence Area	Within this report: The areas within the outer limit of the State's continental shelf and high water mark for which a Maritime Usage Licence Application is submitted to MARA for a licence under the Maritime Area Planning Act 2021.
MARPOL	MARPOL is the main international convention aimed at the prevention of pollution from ships caused by operational or accidental causes. It was adopted at the International Maritime Organization (IMO) in 1973. The

	Protocol of 1978 was adopted in response to a number of tanker accidents in 1976–1977.
Metocean	Metocean conditions refer to the combined wind, wave, and climate conditions as found on a certain location. They are most often presented as statistics, including seasonal variations, scatter tables, wind roses and probability of exceedance.
Mudflats	Tidal mudflat habitat is comprised of the intertidal section of the coastline where muds dominate.
Multibeam Echosounder (MBES)	An echosounder uses sound waves to measure water depth. A transducer mounted under a vessel emits a pulse which travels through the water to the seafloor and bounces back to a receiver. The time it takes for the signal to return is measured, and because the speed of sound through water) is known, the water depth under the boat is measured. This is the basic principle of hydrography and seafloor mapping. A multibeam echosounder (MBES) measures multiple echoes at a time.
Natura Impact Statement	A Natura Impact Statement (NIS) is the statement prepared following Appropriate Assessment (AA) of Natura 2000 sites as required under the EU Habitats Directive which presents information on the assessment and the process of collating data on a project and its potential significant impacts on Natura 2000 site(s).
Pollution Event	A 'pollution incident' includes a leak, spill or escape of a substance, or circumstances in which this is likely to occur.
Pot Fishing	Pots and traps are used in commercial fishing to catch crustaceans such as lobster, crab, and shrimp.
Cable Investigation Area	Area where site investigations will take place to determine the suitability of that area as a route for the export electricity cable from the wind farm to land.
Receiving Environment	The receiving environment is the environment upon which a proposed activity might have effects.
Reefs	Reefs are marine features with hard substrate available for colonisation by plants and animals. In Irish waters they range from the intertidal to depths of 4,500m and more than 400km from the coast.
Sandbanks	Sandbanks are distinct banks that arise from horizontal or sloping plains of sediment that ranges from gravel to fine sand. They are primarily composed of sandy sediments permanently covered by water, at depths of less than 20m below chart datum.
Sandflats	Tidal sandflat habitat is comprised of the intertidal section of the coastline where sands dominate.
Side Scan Sonar (SSS)	Side-scan uses a sonar device that emits conical or fan-shaped pulses down toward the seafloor across a wide-angle perpendicular to the path of the sensor through the water, which may be towed from a surface vessel or submarine or mounted on the ship's hull.

Special Areas of Conservation (SAC)	These are prime wildlife conservation areas considered to be important on a European as well as national level. The EU Habitats Directive lists certain habitats and species that must be protected within SACs.
Special Protection Areas (SPA)	Ireland is required under the terms of the EU Birds Directive (2009/147/EC) to designate Special Protection Areas (SPAs) for the protection of: Listed rare and vulnerable species; regularly occurring migratory species and wetlands, especially those of international importance.
Sub-Bottom Profiler	A sub-bottom profiler is a type of sonar system that produces a 2-dimensional stratigraphic cross section by using acoustic energy to image sub-surface features in an aquatic environment.
Sea Cliffs	A sea cliff is a steep or vertical slope located on the coast, the base of which is in either the intertidal or subtidal zone. Hard cliffs, composed of hard rock such as basalt, are at least 5m high, while soft cliffs, composed of softer substrates such as shale or boulder clay, are at least 3m high.
Vibrocore	Vibrocoring is a sediment sampling methodology for retrieving continuous, undisturbed cores. Vibrocorers can work in a variety of water depths and can retrieve core samples at different lengths depending on sediment lithology and project objectives.
Water Courses	Natural or artificial channels through which water flows.
Wave Buoy	Wave buoys are used to measure the movement of the water surface as a wave train. The wave train is analysed to determine wave characteristics such as the significant wave height and period, and wave direction.

EXECUTIVE SUMMARY

This report in support of the associated Maritime Usage Licence Application for the North Irish Sea Array (NISA) project includes information in support of Stage 1 of the Appropriate Assessment (Screening for Appropriate Assessment (AA)) process as required under the Habitats Directive (92/43/EEC).

The report aims to support the Licence application process and provide the necessary information to the competent authorities to assist them in making an informed decision on the likely impact of this project on Special Areas of Conservation (SACs) and their designated Annex I habitats and Annex II species Qualifying Interests (QIs) and Special Protection Areas (SPAs) and their designated Special Conservation Interest (SCI) species.

42 no. SACs, 108 no. SPAs and two candidate SPAs (the North-west Irish Sea cSPA and the Seas off Wexford cSPA) were considered for the potential for likely significant effects to arise via the identified source-receptor-pathways.

Screening has found that likely significant effects on 41 no. Natura 2000 sites as a result of the proposed project could not be excluded. The possibility of likely significant effects from underwater noise on Annex II species of harbour porpoise, bottlenose dolphin, grey seal, common seal and otter could not be excluded. The possibility of likely significant effects due to physical disturbance to marine benthic communities and habitat loss impacting foraging grounds for foraging birds could not be ruled out for bird species at the North-west Irish Sea cSPA.

These sites will therefore require further information to be provided within a Natura Impact Statement (NIS) to support a Stage 2 AA.

Therefore, the following species and their corresponding SACs and cSPA have been screened in for further consideration and must proceed to a Stage 2 Appropriate Assessment (Natura Impact Statement):

- Harbour porpoise (*Phocoena phocoena)*
- Bottlenose dolphin (*Tursiops truncatus)*
- Grey seal (*Halichoerus grypus)*
- Common/harbour seal (*Phoca vitulina)*
- Common Scoter (*Melanitta nigra*)
- Red-throated Diver (*Gavia stellata*)
- Great Northern Diver (*Gavia immer*)
- Fulmar (*Fulmarus glacialis*)
- Manx Shearwater (*Puffinus puffinus*)
- Shag (*Phalacrocorax aristotelis*)
- Cormorant (*Phalacrocorax carbo*)
- Little Gull (*Larus minutus*)
- Kittiwake (*Rissa tridactyla*)
- Black-headed Gull (Chroicocephalus ridibundus)
- Common Gull (*Larus canus*)
- Lesser Black-backed Gull (*Larus fuscus*)
- Herring Gull (*Larus argentatus*)
- Great Black-backed Gull (*Larus marinus*)
- Little Tern (*Sterna albifrons*)

- Roseate Tern (*Sterna dougallii*)
- Common Tern (*Sterna hirundo*)
- Arctic Tern (*Sterna paradisaea*)
- Puffin (*Fratercula arctica*)
- Razorbill (*Alca torda*)
- Guillemot (*Uria aalge*)

1 INTRODUCTION

North Irish Sea Array Windfarm Limited (NISA Ltd), (a joint venture between Statkraft Ireland Ltd and Copenhagen Infrastructure Partners P/S.) has prepared this report in support of an application for a Maritime Usage Licence under the Maritime Area Planning (MAP) Act (2021), to carry out site investigation activities to inform the development of the North Irish Sea Array (NISA) offshore windfarm (OWF) and export cable route, off the coasts of counties Dublin, Meath and Louth.

The Licence Application Area (outlined in red below) comprises the proposed OWF site boundary (pink/red area below) with an area of 88.53 km^2 and the proposed cable corridor (outlined in red and crosshatched) with the cable corridor site investigation area having area of 36.45 km^2. The total Licence Application Area is 124.99 km^2 (Figure 1-1).

NISA Ltd intends to undertake a survey campaign at the proposed Licence Area to inform the location and design of the proposed offshore wind farm and cable route. The site investigation activities will include marine geophysical, hydrographic, geotechnical, benthic subtidal and intertidal ecology surveys, environmental, metocean and archaeological surveys, and water quality monitoring.

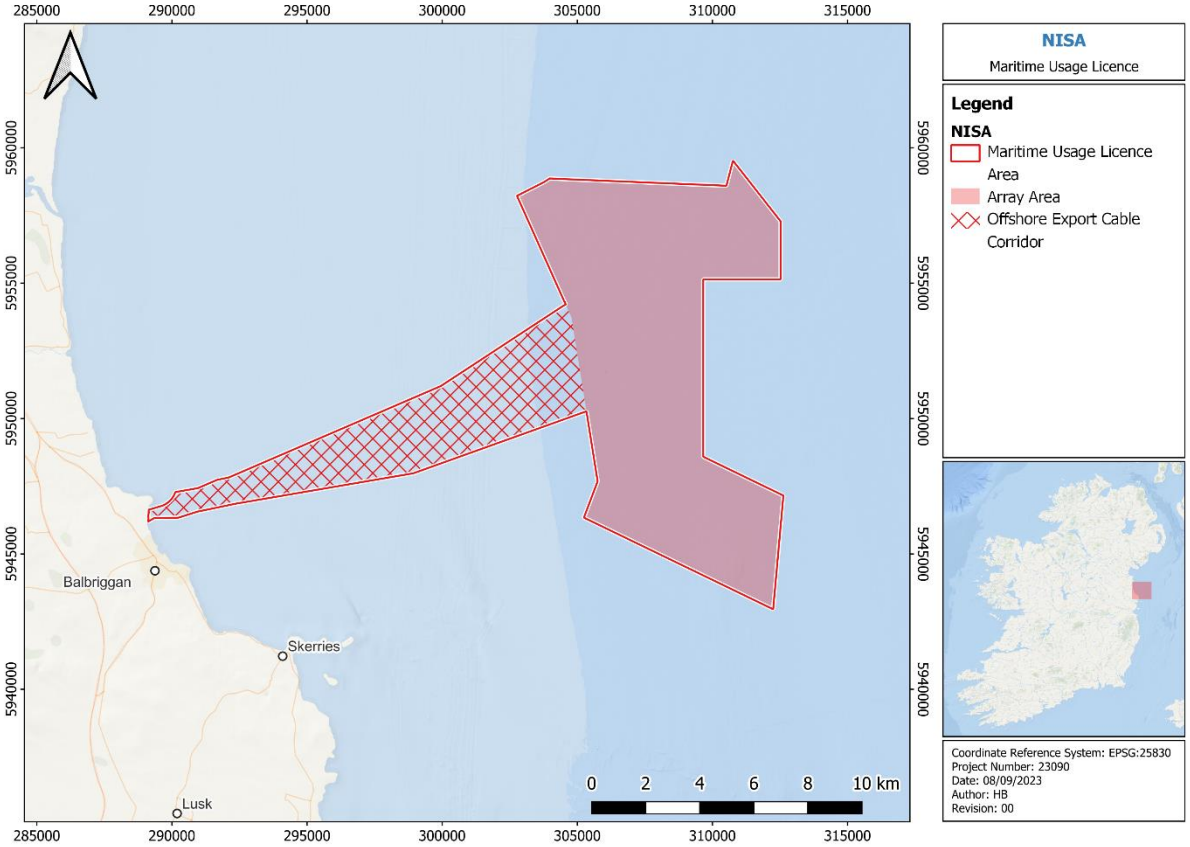

Figure 1-1 Licence Application Area

1.1 AIM OF THIS REPORT

This report includes information in support of Stage 1 of the Appropriate Assessment (Screening for Appropriate Assessment) process as required under the Habitats Directive (92/43/EEC).

This report aims to support the Licence application process and provide the necessary information to the competent authorities to assist them in making an informed decision on the likely impact of this project on Special Areas of Conservation (SACs) and their designated Annex I habitats and Annex II species Qualifying Interests (QIs) and Special Protection Areas (SPAs) and their designated Special Conservation Interest (SCI) species.

1.2 STRUCTURE OF THE REPORT

This report is structured into the following chapters to include information relating to the AA process, proposed activities and potential impacts, and the receiving environment, including relevant Natura 2000 sites and features. Specifically, the chapters of this report are as follows:

- Executive Summary
- Chapter 1: Introduction (This chapter)
- Chapter 2: Habitats Directive (92/43/EEC) (outlines key aspects of the process)
- Chapter 3 Potential environmental impacts of proposed site investigation activities
- Chapter 4: Identification of relevant European Sites within Zone of Influence of works (using Source-Pathway-Receptor approach)
- Chapter 5: Assessment of Likely Significant Effects
- Chapter 6: (Stage 1) Screening Determination Statement
- Chapter 7: Screening Statement Outcome

1.3 LICENCE AREA

This document has been produced in support of a Maritime Usage Licence Application, which seeks consent to conduct site investigation activities to inform the development of the NISA offshore windfarm (OWF) and cable corridor off the coasts of counties Dublin, Meath and Louth. This is not an application for a wind farm development.

The Licence Area covers a total area of 124.99 km^2 and is comprised of the proposed OWF Area and cable corridor, shown in Figure 1-2. The coordinates of the Licence Area are provided in Table 1-1.

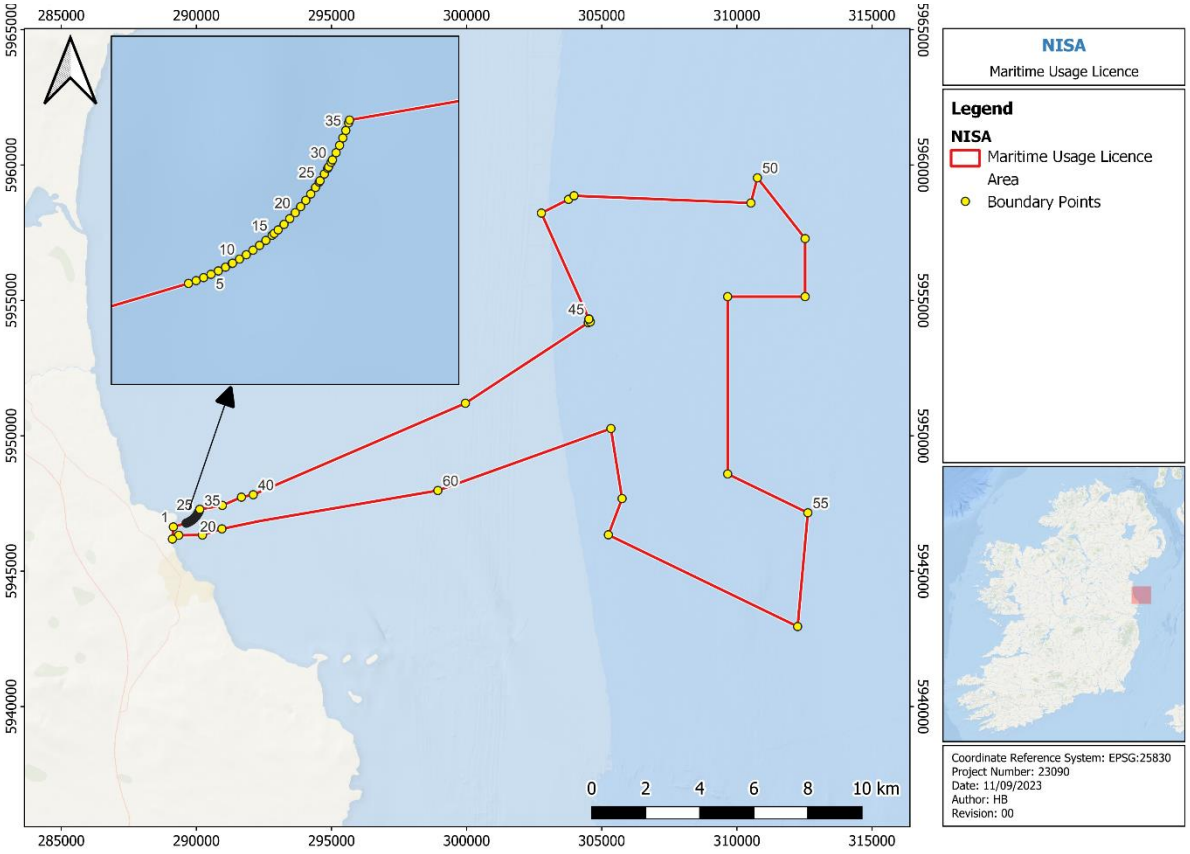

Figure 1-2 Licence Area Boundary Points

Table 1-1: Coordinates

Id	Latitude (degrees decimal minutes)	Longitude (degrees decimal minutes)	Id	Latitude (degrees decimal minutes)	Longitude (degrees decimal minutes)
1	53°37.557'N	6°11.319'W	33	53°37.887'N	6°10.485'W
2	53°37.643'N	6°10.897'W	34	53°37.900'N	6°10.477'W
3	53°37.648'N	6°10.875'W	35	53°37.913'N	6°10.469'W
4	53°37.654'N	6°10.854'W	36	53°37.926'N	6°10.462'W
5	53°37.660'N	6°10.834'W	37	53°37.931'N	6°10.460'W
6	53°37.666'N	6°10.813'W	38	53°38.028'N	6°9.710'W
7	53°37.673'N	6°10.794'W	39	53°38.209'N	6°9.082'W
8	53°37.680'N	6°10.775'W	40	53°38.268'N	6°8.691'W
9	53°37.680'N	6°10.774'W	41	53°40.271'N	6°1.705'W
10	53°37.688'N	6°10.755'W	42	53°41.977'N	5°57.694'W
11	53°37.696'N	6°10.736'W	43	53°41.997'N	5°57.627'W
12	53°37.704'N	6°10.718'W	44	53°42.052'N	5°57.673'W
13	53°37.713'N	6°10.700'W	45	53°42.050'N	5°57.677'W
14	53°37.721'N	6°10.682'W	46	53°44.118'N	5°59.422'W
15	53°37.731'N	6°10.665'W	47	53°44.415'N	5°58.531'W
16	53°37.734'N	6°10.660'W	48	53°44.491'N	5°58.350'W

17	53°37.740'N	6°10.649'W	49	53°44.492'N	5°52.393'W
18	53°37.750'N	6°10.633'W	50	53°44.997'N	5°52.208'W
19	53°37.760'N	6°10.617'W	51	53°43.827'N	5°50.522'W
20	53°37.770'N	6°10.602'W	52	53°42.672'N	5°50.444'W
21	53°37.781'N	6°10.588'W	53	53°42.610'N	5°53.047'W
22	53°37.792'N	6°10.574'W	54	53°39.082'N	5°52.806'W
23	53°37.803'N	6°10.561'W	55	53°38.373'N	5°50.063'W
24	53°37.814'N	6°10.548'W	56	53°36.103'N	5°50.254'W
25	53°37.824'N	6°10.538'W	57	53°37.774'N	5°56.723'W
26	53°37.826'N	6°10.536'W	58	53°38.506'N	5°56.314'W
27	53°37.838'N	6°10.524'W	59	53°39.890'N	5°56.786'W
28	53°37.848'N	6°10.516'W	60	53°38.512'N	6°2.505'W
29	53°37.850'N	6°10.513'W	61	53°37.561'N	6°9.689'W
30	53°37.858'N	6°10.507'W	62	53°37.421'N	6°10.333'W
31	53°37.862'N	6°10.503'W	63	53°37.396'N	6°11.128'W
32	53°37.875'N	6°10.494'W	64	53°37.315'N	6°11.333'W

1.4 SITE INVESTIGATION ACTIVITIES

The objective of the proposed NISA site investigation campaigns is to determine the environmental conditions and seafloor and subsurface geological characteristics within the Licence Area.

The proposed programme of site investigations to be undertaken within the Licence Area is described in detail in the Programme of Works section of the Assessment of Impacts on the Maritime Usage (AIMU) document accompanying this Application.

The exact technical specifications of the equipment to be used will not be known until the survey contracts have been awarded. However, a description of typical equipment and expected survey parameters is provided in the Programme of Works section of the AIMU.

All efforts will be made to follow survey recommendations outlined in the Guidance on Marine Baseline Ecological Assessments & Monitoring Activities for Offshore Renewable Energy Projects Part 1 and 2 (DCCAE, April 2018).

1.5 SURVEY SCHEDULE

The intention is to begin survey activities as soon as feasible in Q1 2024 following license award, with a staged programme of investigations capitalising on suitable weather windows over the licence duration. The approximate durations of each Site Investigation activity are provided in Table 2-3 in Section 2.2 of the AIMU document accompanying this application. This phased approach will be used to inform the overall development and design of the NISA project as it progresses towards detailed design stage. The exact mobilisation dates for particular surveys will not be known until the process of procuring a contractor is complete. Timing of the site investigation activities is dependent on many factors including weather, tidal flows, availability of vessels and the grant of a licence. The granting of a licence will have a direct effect on the timing of site investigation activities.

2 HABITATS DIRECTIVE (92/43/EEC)

The purpose of this report is to inform the AA process as required under the Habitats Directive (92/43/EEC). The AA Screening contained in Section 5 of this report will determine whether the proposed surveys, both alone and in combination/cumulatively with other planned activities under the remit of this project and others, are likely to have a significant effect on any Natura 2000 site or its qualifying interests. This document includes Stage 1 of the Appropriate Assessment process. For Stage 2 (Natura Impact Statement (NIS)) please see the accompanying NISA OWF Maritime Usage Licence Application NIS document.

This report has been prepared in accordance with the following guidance:

1 Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (Department of Environment, Heritage and Local Government, 2010 revision)
2 Appropriate Assessment under Article 6 of the Habitats Directive; Guidance for Planning Authorities. Circular NPW 1/10 and PSSP 2/10
3 Guidance to Manage the Risk to Marine Mammals from Manmade Sound Sources in Irish Waters. Prepared by National Parks and Wildlife Service, DAHG (2014).
4 Guidelines for Good Practice: Appropriate Assessment of Plans under Article 6(3) Habitats Directive (International Workshop on Assessment of Plans under the Habitats Directive, 2011);
5 Marine Natura Impact Statements in Irish Special Areas of Conservation: A working document. Prepared by National Parks and Wildlife Service, DAHG (2012).
6 Managing Natura 2000 Sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (European Commission - 21 November 2018)
7 Office of the Planning Regulator – Practice Note 01 – PN01 (March 2021)
8 Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43EEC (European Commission (2021)).

2.1 LEGISLATIVE BACKGROUND

The Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna), which was adopted in 1992 and transposed into Irish Law by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) (as amended) (the Habitat Regulations), aims to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements. It provides a framework for legal protection to ensure the conservation of a wide range of rare, threatened, or endemic animal and plant species throughout the European Union. The Birds Directive (Conservation of Wild Birds Directive (2009/147/EC) aims to protect all of the 500 wild bird species naturally occurring in the European Union. The Habitats Directive and Birds Directive form the cornerstone of Europe's nature conservation policy. Together

they form a coherent network of protected areas (SACs and SPAs), called Natura 2000, safeguarded against potentially damaging developments.

The requirement for "Appropriate Assessment" is set out in Articles 6(3) and 6(4) of the Habitats Directive (92/43/EEC). If a project is likely to have a significant effect on a Natura 2000 site, either alone or in combination with other plans or projects, it must undergo an Appropriate Assessment (AA). According to Article 6(3) of the Habitats Directive:

“Any plan or project not directly connected with or necessary to the management of the site (Natura 2000 site) but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the site in view of the site's conservation objectives”.

In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only having ascertained that it will not adversely affect the integrity of the site concerned and if appropriate, after having obtained the opinion of the general public.

Article 6(4) states: “If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for environment or, further to an opinion from the Commission to other imperative reasons of overriding public interest.”

2.2 THE APPROPRIATE ASSESSMENT PROCESS

The European Commission’s methodological guidance (EC, 2021) promotes a three-stage process to complete an AA and outlines the issues and tests at each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required. The steps and procedures involved in completing each stage, as described in the guidance, are shown below (Figure 2-1).

— ***Stage one: screening***. The first part of the procedure consists of a pre-assessment stage ('screening') to ascertain whether the plan or project is directly connected with, or necessary to, the management of a Natura 2000 site, and, if this is not the case, then whether it is likely to have a significant effect on the site (') (either alone or in combination with other plans or projects) in view of the site's conservation objectives. Stage one is governed by the first part of the first sentence of Article 6(3).

— ***Stage two: the appropriate assessment***. If likely significant effects cannot be excluded, the next stage of the procedure involves assessing the impact of the plan or project (either alone or in combination with other plans or projects) against the site's conservation objectives, and ascertaining whether it will affect the integrity of the Natura 2000 site, taking into account any mitigation measures. It will be for the competent authorities to decide whether or not to approve the plan or project in light of the findings of the appropriate assessment. Stage two is governed by the second part of the first sentence and the second sentence of Article 6(3).

— ***Stage three: derogation from Article 6(3) under certain conditions***. The third stage of the procedure governed by Article 6(4). It only comes into play if, despite a negative assessment, the developer considers that the plan or project should still be carried out for imperative reasons of overriding public interest. This is only possible if there are no alternative solutions, the imperative reasons of overriding public interest are duly justified, and if suitable compensatory measures are adopted to ensure that the overall coherence of Natura 2000 is protected.

Figure 2-1: Stages in the AA process (Source: EC, 2021)

For the avoidance of doubt, it is confirmed that no measures intended to avoid or prevent any potential harmful effects of the proposed activities on any European Site have been considered when carrying out this screening exercise.

2.3 METHODOLOGY FOR THE PREPARATION OF THIS REPORT

This document includes information to support Stage 1 of the Appropriate Assessment process, as detailed in section 2.2 above, and has been prepared in accordance with the guidance numbered 1 to 8 in the first paragraphs of this section above.

As the proposed works are not directly connected to or necessary for the management of a Natura 2000 site, this document focuses on assessing whether the works, alone or cumulatively with other plans and projects, are likely to have significant effects on any Natura 2000 site in view of its conservation objectives.

This report has been informed by a review of publicly available datasets and available scientific literature that allowed the characterisation of the receiving environment and supported the identification and assessment of potential impacts and their significance. The sources of the information used are cited throughout the report and listed in the References section.

The examination, analysis and evaluation of the relevant information that supported the Appropriate Assessment process conducted and documented in this report followed the precautionary principle throughout.

The report content (and corresponding chapters) includes:

- Description of the proposed project (see chapter 1)
- Description of legislative background, of the Appropriate Assessment process and Methodology for the preparation of the report (this chapter)
- Identification and description of the potential direct and indirect effects on the Natura 2000 sites (see chapter 3)
- Identification of the relevant Natura 2000 sites and their Qualifying Interests (QIs), and their AA Screening (Stage 1) against the identified potential impacts (see chapter 4 and 5)
- Natura Impact Statement (Stage 2) is presented in the accompanying document 23090-REP-003-01 MUL NIS.

This report has been prepared by [redacted] (BSc. Earth Science, MSc. Coastal and Marine Environments: Physical Processes, Policy and Practice). [redacted] is an Environmental Scientist with experience in marine licence application preparation, Environmental Impact Assessment Scoping report preparation and has experience with environmental mapping. This report has been checked by [redacted] BSc. Hons Geological Science, MSc. Geochemistry). [redacted] is a Senior Environmental Scientist with extensive experience as an environmental consultant, undertaking various multi-disciplinary projects within consulting engineering.

This report has been checked and approved by [redacted] (BSc. Hons Marine Science, MSc. Engineering in the Coastal Environment). [redacted] is a Marine Ecologist with coastal engineering expertise and extensive experience of offshore benthic survey and Marine Protected Area monitoring who has undertaken multiple environmental assessments under the Habitats Directive for GDG and as a statutory adviser to the UK government and its devolved administrations with the Joint Nature Conservation Committee.

3 POTENTIAL ENVIRONMENTAL IMPACTS OF PROPOSED ACTIVITIES

The potential direct and indirect environmental impacts identified for appraisal are set out in Table 3-1 and described below, given the site investigation activities proposed (note the proposed activities are summarised in Section 1.4 and described in the Programme of Works within the AIMU document submitted as part of this Licence Application).

All impacts listed in Table 3-1 are considered relevant for the proposed activities. Information about these impacts is provided in Sections 3.1 to 3.5.

Table 3-1 Potential direct and indirect environmental impacts of activities identified for appraisal

Impact	Direct/Indirect
Physical disturbance to marine benthic communities	Direct
Disturbance from vibration and underwater noise associated with surveys	Direct
Injury due to collision (survey vessels/sampling equipment)	Direct
Visual and noise disturbance for bird species	Direct
Pollution event	Indirect

3.1 PHYSICAL DISTURBANCE TO MARINE BENTHIC COMMUNITIES AND HABITAT LOSS

Physical disturbance to marine benthic communities in the footprint of site investigation activities may result in:

- Habitat disturbance and smothering
- Increased suspension of solids in water column
- Vibration (from geo-technical equipment)
- Sediment penetration and some substratum loss

3.2 DISTURBANCE FROM VIBRATION AND UNDERWATER NOISE ASSOCIATED WITH SURVEYS

The physical presence of the survey vessel and the site investigation activities may introduce vibration and noise to the underwater environment.

3.3 INJURY DUE TO COLLISION (SURVEY VESSELS/SAMPLING EQUIPMENT)

There is a risk of collision between marine mammals and survey vessels which may cause injury to marine mammals.

3.4 PHYSICAL AND AIRBORNE NOISE DISTURBANCE TO BIRD SPECIES

The physical presence of and airborne noise from the survey vessels and activities may cause displacement and/or other behavioural responses in birds, including during the breeding season.

3.5 POLLUTION EVENT

Benthic habitats and seabirds (in particular diving birds) are considered vulnerable to oil pollution which could come from the survey vessels given the time seabirds spend resting on the water surface, and diving through it in search of food.

4 IDENTIFICATION OF RELEVANT EUROPEAN SITES

This Chapter outlines the criteria used for defining the Zone of Influence (ZOI) [1] relevant to the potential impacts of the proposed site investigation works, outlines how European Natura 2000 sites have been identified (i.e. using the Source-Pathway-Receptor model) and describes the sites which have been identified as having the potential to be affected by the proposed works.

The European Natura 2000 site information is based on the most up-to-date data available from the site synopses published by the National Parks and Wildlife Service (NPWS, www.npws.ie), the Joint Nature Conservation Committee (JNCC, https://jncc.gov.uk/) and the European Commission (https://ec.europa.eu/environment/nature/natura2000/index_en.htm).

4.1 ZONE OF INFLUENCE OF THE SITE INVESTIGATION ACTIVITIES

The following SACs and SPAs have been identified as potentially falling within the ZOI of the proposed works:

- Any SAC in the vicinity of the Screening Area designated for Annex I habitats which have the potential to be affected by the proposed works (Figure 4-1).
- Any SAC designated for mobile Annex II species which have the potential to occur within the Screening Area and be affected by the works (Table 4-1 and Table 4-3, and Figure 4-2 and Figure 4-3).
- Any SPA (or cSPA) designated for birds, including SPAs with breeding seabirds listed as species of Qualifying Interest, which have the potential to occur within the Screening Area and be affected by the proposed works (Figure 4-4 to Figure 4-7, Table 4-4, and Table 4-5). Note indicative breeding season mean maximum foraging ranges from Woodward *et al*. (2019) have been used to determine relevant species (Table 4-2), where mean maximum is the maximum range reported in each study averaged across studies. See Appendix I for a description of how the mean maximum foraging ranges have been used to determine relevant sites and Woodward *et al.* for the criteria used for assigning confidence levels.

[1] The zone of influence (ZOI) of a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This has the potential to extend far beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries.

Table 4-1 Migratory species with a marine element for which SACs have been designated in Ireland and UK

Marine Species			Comments
1349	Bottlenose dolphin	*Tursiops truncatus*	Management units for harbour porpoise and bottlenose dolphin have been used to determine relevant sites depending on the Qualifying Interests
1351	Harbour porpoise	*Phocoena phocoena*	
1364	Grey seal	*Halichoerus grypus*	Foraging distances of 448 km for grey seals (from Carter et al, 2022),
1365	Common (Harbour) seal	*Phoca vitulina*	Foraging distances of 273 km for harbour seals (from Carter et al, 2022),
Marine/freshwater Species			
1095	Sea lamprey	*Petromyzon marinus*	Precautionary 35 km foraging distance has been applied, based on JNCC, 2019
1099	River lamprey	*Lampetra fluviatilis*	Precautionary 35 km foraging distance has been applied, based on JNCC, 2019
1096	Brook lamprey	*Lampetra planeri*	Not considered further as brook lamprey are non-migratory freshwater species (1)
1103	Twaite shad	*Alosa fallax fallax*	Precautionary 35 km foraging distance has been applied, based on JNCC, 2019
1102	Allis shad	*Alosa alosa*	Precautionary 35 km foraging distance has been applied, based on JNCC, 2019
1106	Atlantic salmon	*Salmo salar*	Not considered further as salmon are an anadromous fish which spawns in rivers and is only offered protection under Annex II of the EU Habitats directive when in freshwater. (2)
1092	White-clawed crayfish	*Austropotamobius pallipes*	Not considered further as white-clawed crayfish are non-migratory freshwater species (3)
1355	Eurasian Otter	*Lutra lutra*	12 km alongshore for otter (from Reid et al, 2013) and 80 m seaward; "*Typically, otters do not forage >80m from riverbanks or lake or coastal shores (Kruuk & Moorhouse, 1991)*", from Reid et al, 2013

(1) Brook lamprey (*Lampetra planeri*) - Special Areas of Conservation (jncc.gov.uk), which states "The brook lamprey *Lampetra planeri* is a primitive, jawless fish resembling an eel, and is the smallest of the lampreys found in the UK. It is a non-migratory freshwater species, occurring in streams and occasionally in lakes in north-west Europe."

(2) to Atlantic salmon (*Salmo salar*) - Special Areas of Conservation (jncc.gov.uk), which states "It should be noted that salmon is an Annex II species only in freshwaters throughout the EU, and therefore marine and estuarine sites are excluded from selection".

(3) White-clawed crayfish (*Austropotamobius pallipes)* fresh water species (jncc.gov.uk)

Table 4-2 Indicative breeding season foraging ranges and associated confidence levels (Woodward et al. 2019)

Indicative breeding season foraging ranges		
Species	Mean maximum (km ± SD)	Confidence Level
Eider	21.5	Poor
Red-throated diver	9	Low
Fulmar	542.3 ± 657.9	Good
Manx shearwater	1,346.8 ±,1,018.7	Moderate
European storm petrel	336	Poor
Leach's storm petrel	n/a	Moderate
Gannet	315.2 ± 194.2	Highest
Cormorant	25.6 ± 8.3	Moderate
Shag	13.2 ± 10.5	Highest
Arctic skua	n/a	Poor
Great skua	443.3 ± 487.9	Uncertain
Black-headed gull	18.5	Uncertain
Common gull	50	Poor
Mediterranean gull	20	Uncertain
Herring gull	58.8 ± 26.8	Good
Lesser black-backed gull	127 ± 109	Highest
Kittiwake	156.1 ± 144.5	Good
Sandwich tern	34.3 ± 23.2	Moderate
Roseate tern	12.6 ± 10.6	Moderate
Common tern	18.0 ± 8.9	Good
Arctic tern	25.7 ± 14.8	Good
Little tern	5	Moderate
Guillemot	73.2 ± 80.5	Highest
Razorbill	88.7 ± 75.9	Good
Puffin	137.1 ± 128.3	Good

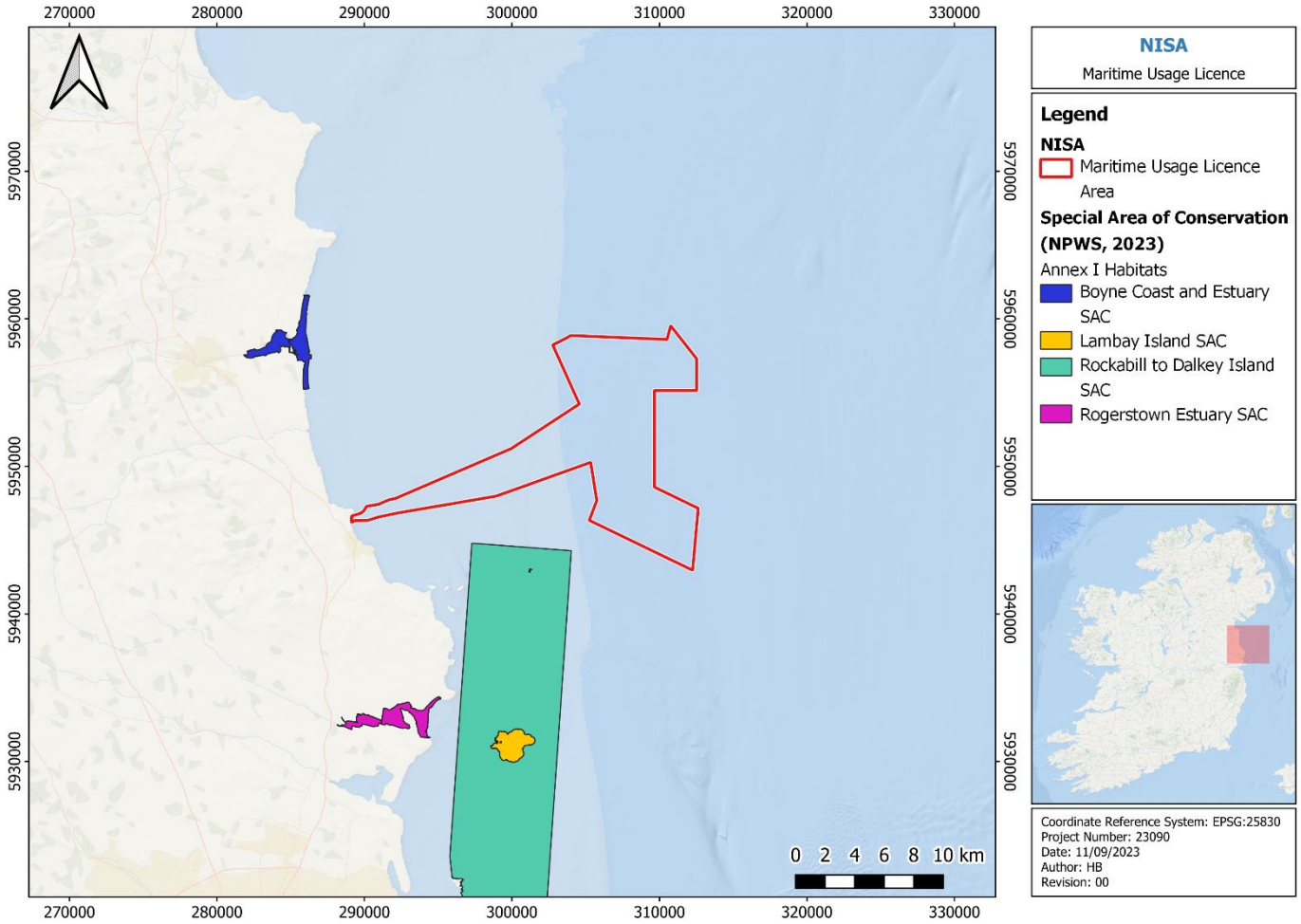

Figure 4-1 SACs designated for Annex I habitats in the vicinity of proposed site investigation activities

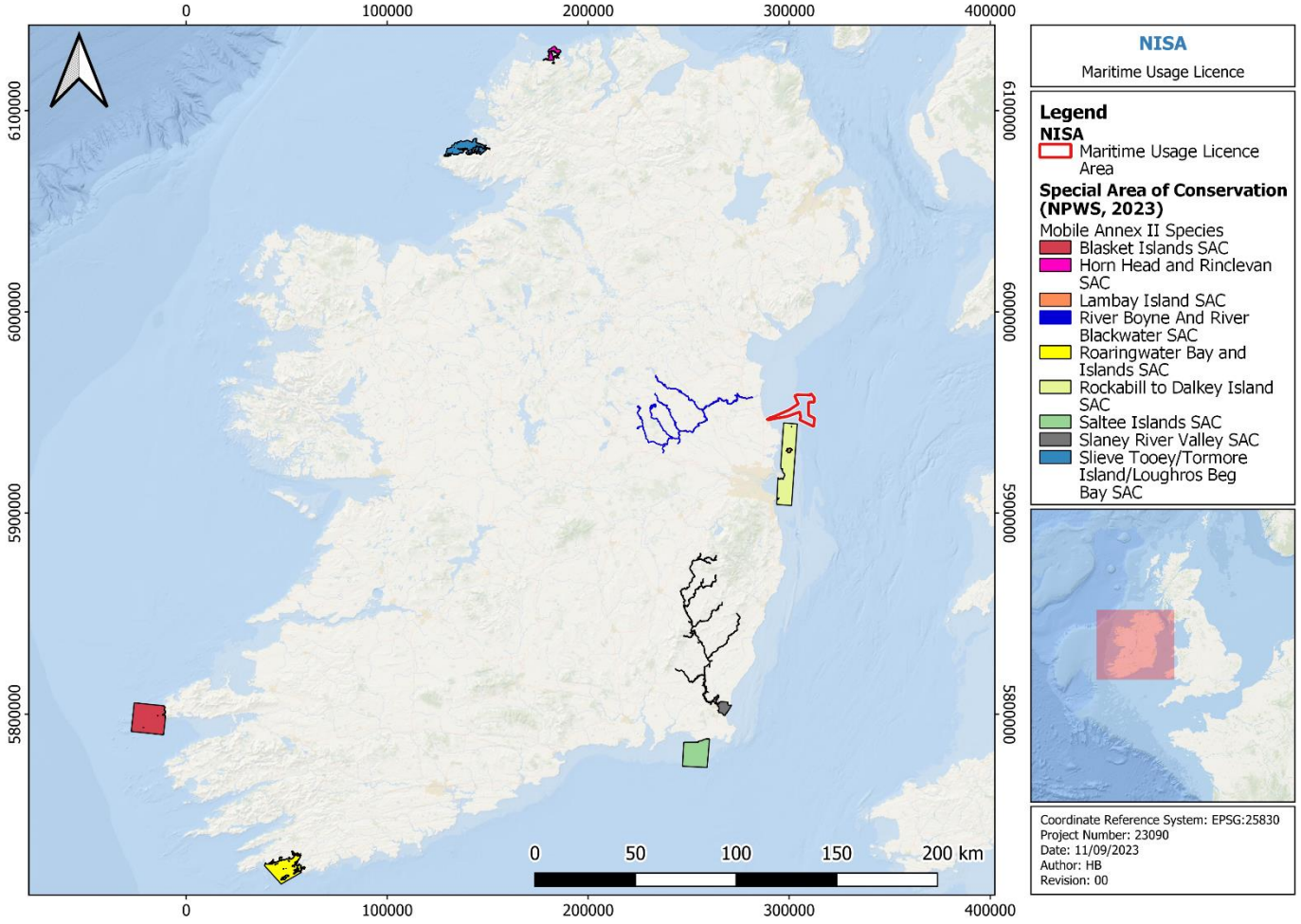

Figure 4-2 Irish SACs designated for Annex II mobile species

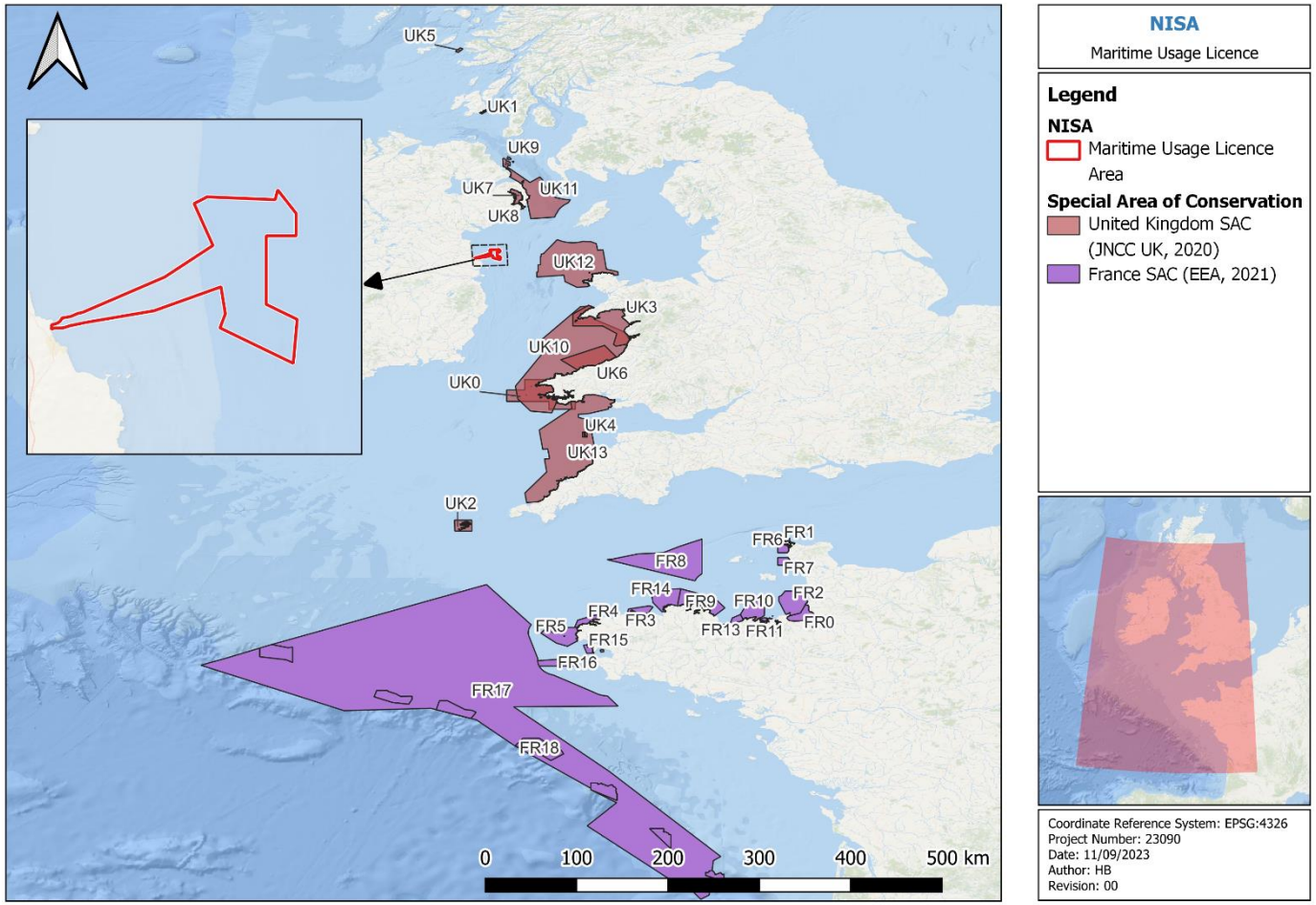

Figure 4-3 UK and France SACs designated for mobile Annex II species

Table 4-3 UK and French SACs label key

Label	French SAC Site Name	Label	UK SAC Site Name
FR0	Baie du Mont Saint-Michel	UK0	Pembrokeshire Marine/ Sir Benfro Forol
FR1	Récifs et landes de la Hague	UK1	South-East Islay Skerries
FR2	Chausey	UK2	Isles of Scilly Complex
FR3	Baie de Morlaix	UK3	Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau
FR4	Abers - Côte des légendes	UK4	Lundy
FR5	Ouessant-Molène	UK5	Treshnish Isles
FR6	Anse de Vauville	UK6	Cardigan Bay/ Bae Ceredigion
FR7	Banc et récifs de Surtainville	UK7	Strangford Lough
FR8	Nord Bretagne DH	UK8	Murlough
FR9	Tregor Goëlo	UK9	The Maidens
FR10	Cap d'Erquy-Cap Fréhel	UK10	West Wales Marine / Gorllewin Cymru Forol
FR11	Estuaire de la Rance	UK11	North Channel
FR12	Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard	UK12	North Anglesey Marine / Gogledd Môn Forol
FR13	Baie de Saint-Brieuc - Est	UK13	Bristol Channel Approaches / Dynesfeydd Môr Hafren
FR14	Côte de Granit rose-Sept-Iles		
FR15	Côtes de Crozon		
FR16	Chaussée de Sein		
FR17	Mers Celtiques - Talus du golfe de Gascogne		
FR18	Récifs du talus du golfe de Gascogne		

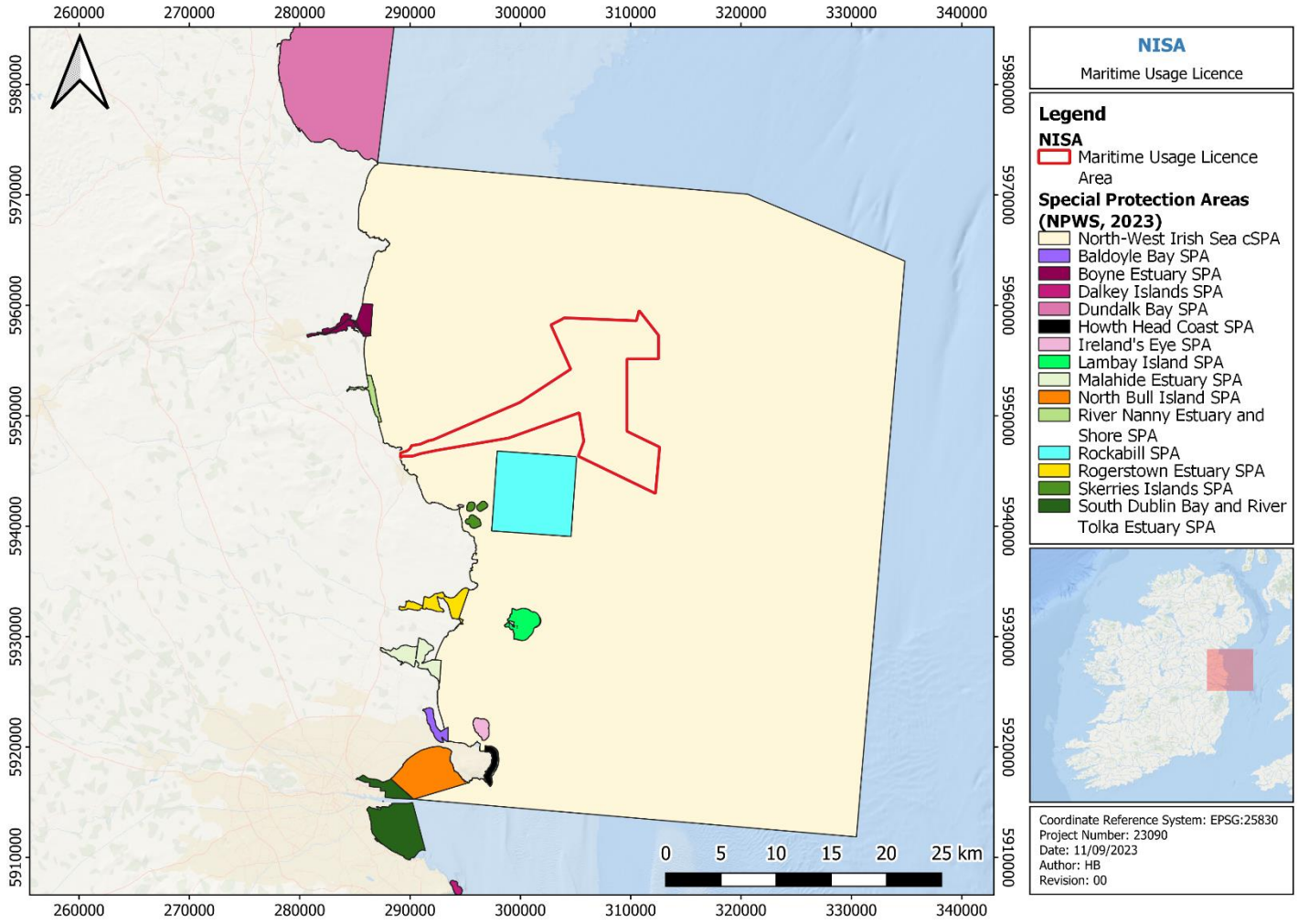

Figure 4-4 Irish SPAs designated for birds potentially within the Zone of Influence of the proposed site investigation activities

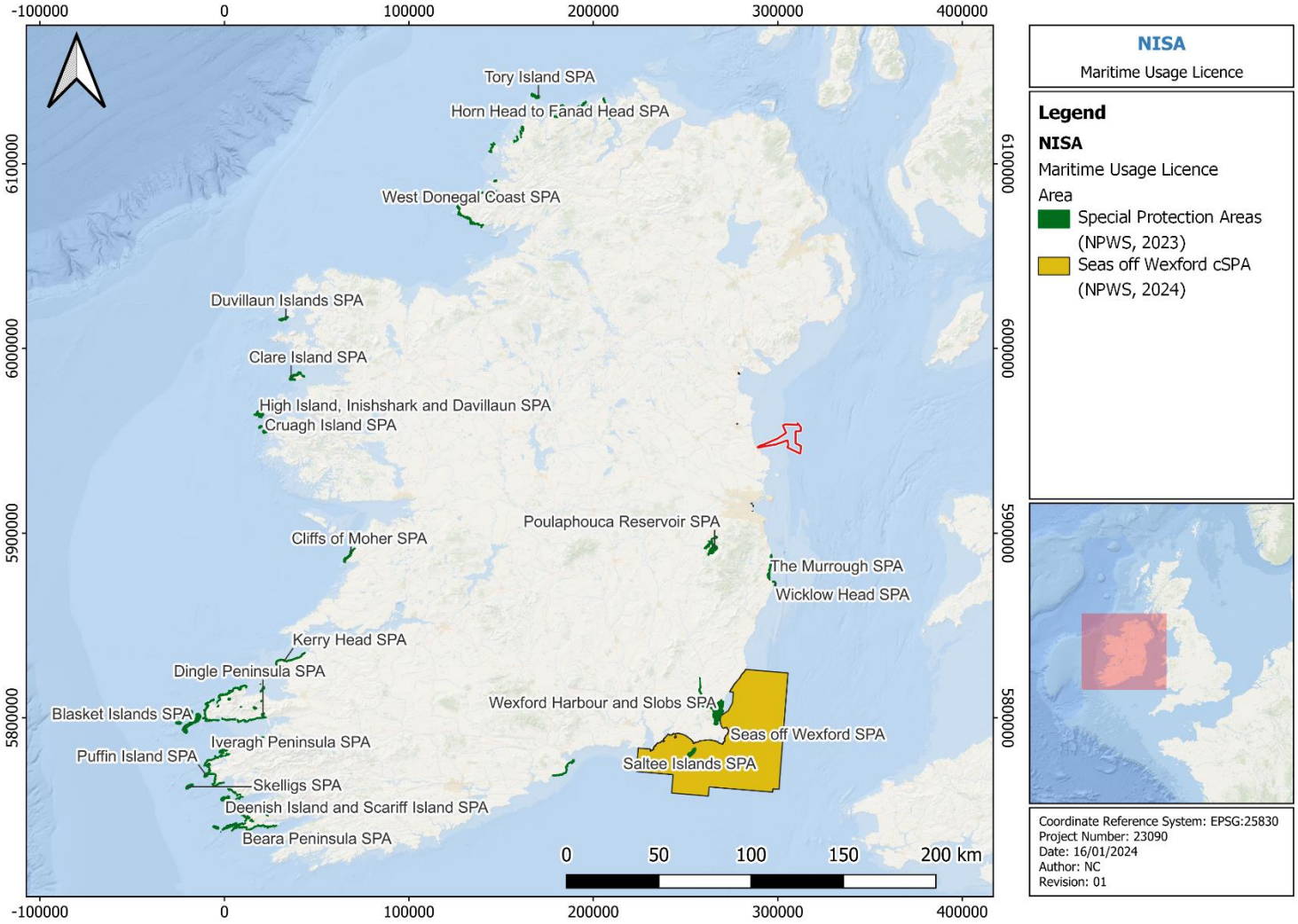

Figure 4-5 Wider Irish SPAs designated for birds potentially within the Zone of Influence of the proposed site investigation activities

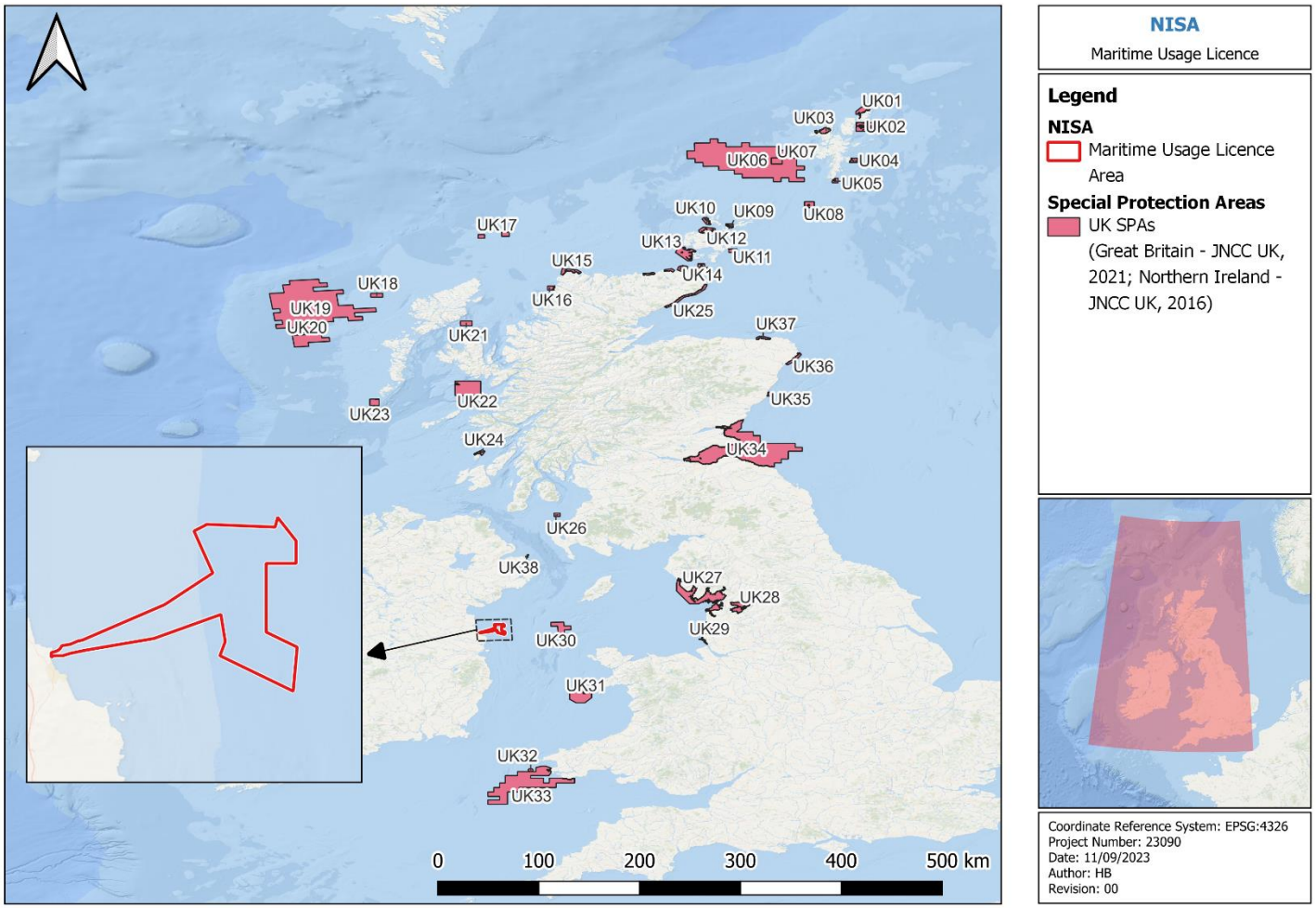

Figure 4-6 UK SPAs designated for birds potentially within the zone of influence of the proposed site investigation activities

Table 4-4 UK SPAs Label Key

Label	Site Name	Label	Site Name
UK01	Hermaness, Saxa Vord and Valla Field	UK20	St Kilda
UK02	Fetlar	UK21	The Shiant Isles
UK03	Ronas Hill - North Roe and Tingon	UK22	Rum
UK04	Noss	UK23	Mingulay and Berneray
UK05	Sumburgh Head	UK24	North Colonsay and Western Cliffs
UK06	Seas off Foula	UK25	East Caithness Cliffs
UK07	Foula	UK26	Ailsa Craig
UK08	Fair Isle	UK27	Morecambe Bay and Duddon Estuary
UK09	Calf of Eday	UK28	Bowland Fells
UK10	West Westray	UK29	Ribble and Alt Estuaries
UK11	Copinsay	UK30	Irish Sea Front
UK12	Rousay	UK31	Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island
UK13	Hoy	UK32	Grassholm
UK14	North Caithness Cliffs	UK33	Skomer, Skokholm and the Seas off Pembrokeshire
UK15	Cape Wrath	UK34	Outer Firth of Forth and St Andrews Bay Complex
UK16	Handa	UK35	Fowlsheugh
UK17	North Rona and Sula Sgeir	UK36	Buchan Ness to Collieston Coast
UK18	Flannan Isles	UK37	Troup, Pennan and Lion`s Heads
UK19	Seas off St Kilda	UK38	Copeland Islands

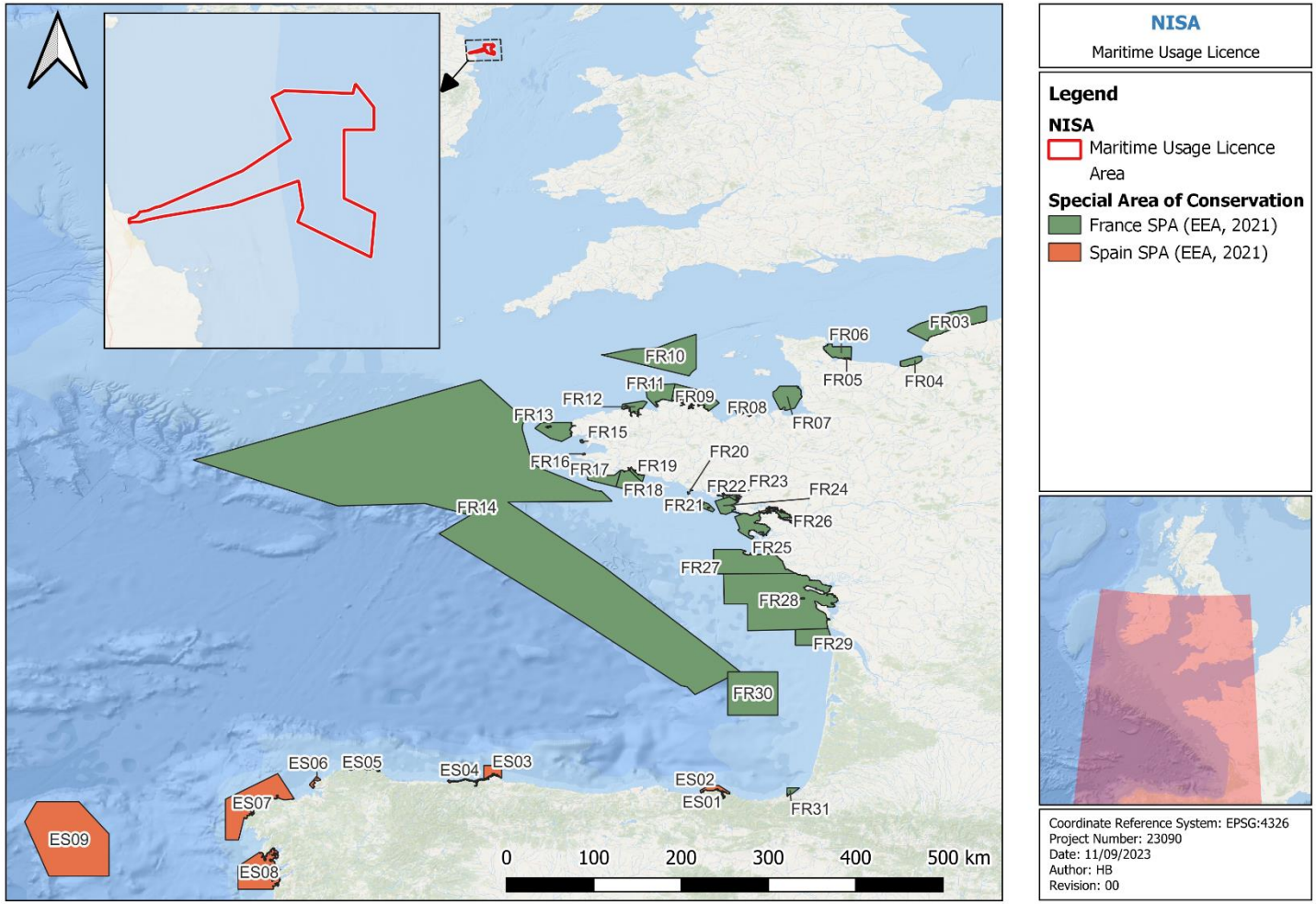

Figure 4-7 French and Spanish SPAs designated for birds potentially within the zone of influence of the proposed site investigation activities

Table 4-5 French and Spanish SPAs label key

Label	Site Name		Site Name
ES01	Urdaibaiko itsasadarra / Ría de Urdaibai	FR12	Baie de Morlaix
ES02	Espacio marino de la Ría de Mundaka-Cabo de Ogoño	FR13	Ouessant-Molène
ES03	Espacio marino de Cabo Peñas	FR14	Mers Celtiques - Talus du golfe de Gascogne
ES04	Cabo Busto-Luanco	FR15	Camaret
ES05	Espacio marino de Punta de Candelaria-Ría de Ortigueira-Estaca de Bares	FR16	Cap Sizun
ES06	Espacio marino de la Costa de Ferrolterra-Valdoviño	FR17	Roches de Penmarc'h
ES07	Espacio marino de la Costa da Morte	FR18	Archipel de Glenan
ES08	Espacio marino de las Rías Baixas de Galicia	FR19	Dunes et côtes de Trévignon
ES09	ZEPA Banco de Galicia	FR20	Baie de Quiberon
FR01	Bancs des Flandres	FR21	Iles Houat-Hoedic
FR02	Cap Gris-Nez	FR22	Rivière de Pénerf
FR03	Littoral seino-marin	FR23	Baie de Vilaine
FR04	Littoral augeron	FR24	Mor Braz
FR05	Falaise du Bessin Occidental	FR25	Estuaire de la Loire - Baie de Bourgneuf
FR06	Baie de Seine occidentale	FR26	Estuaire de la Loire
FR07	Chausey	FR27	Secteur marin de l'île d'Yeu jusqu'au continent
FR08	Cap d'Erquy-Cap Fréhel	FR28	Pertuis charentais - Rochebonne
FR09	Tregor Goëlo	FR29	Panache de la Gironde
FR10	Nord Bretagne DO	FR30	Tête de Canyon du Cap Ferret
FR11	Cote de Granit Rose-Sept Iles	FR31	Estuaire de la Bidassoa et baie de Fontarabie

4.2 IDENTIFICATION OF RELEVANT NATURA 2000 SITES USING SOURCE-PATHWAY-RECEPTOR MODEL AND COMPILATION OF INFORMATION QUALIFYING INTERESTS AND CONSERVATION OBJECTIVES

A Source-Pathway-Receptor (SPR) model has been used to identify the existence and characteristics of the pathways that could link these European sites in the ZOI of the proposed site investigation activities, and their Qualifying Interests to the proposed (Table 4-6) as outlined in OPR Practice Note 01: PN01.

Full European site and feature background information has not been reproduced from the NPWS website as PN01 states "short paraphrasing and/or cross reference to NPWS is acceptable – it is not necessary to reproduce the full text on the QI/SC"; instead, the relevant information has been paraphrased with NPWS resources referenced as appropriate**.**

In total, **153 Natura 2000** sites were identified as being in the zone of influence of the Application area and deemed relevant for screening in Section 5. The **43** SACs and their QIs which have been included for screening in Section 5 are summarised in Table 4-6 - Table 4-8 and the **110** SPAs and their SCIs, including the North-west Irish Sea cSPA and the Seas off Wexford cSPA, which have been included for screening are summarised in Table 4-9.

Please note:

- Where site investigation activities are located outside of and not adjacent to SACs, no source-pathway-receptor connection has been identified to the designated Annex I habitats within these SACs.
- As all site investigation activities are located in the marine environment, no source-pathway-receptor connection has been identified to any designated Annex II salmon or brook lamprey species QI within any SAC. Salmon is an anadromous fish which spawns in rivers and is only offered protection under Annex II of the EU Habitats directive when in freshwater[2] while brook lamprey are non-migratory freshwater species[3].
- For UK and French SACs, only the designated migratory QIs in the zone of influence of the proposed activities (as defined for the relevant species above) are considered. Annex I Habitats or other Annex II species are therefore not included in Table 4-6 and Table 4-7 or considered in further screening.
- For UK, French and Spanish SPAs only the designated SCIs within the zone of influence are considered as defined Table 4-2.
- The North-West Irish Sea candidate SPA, announced in July 2023, has been included in this assessment.
- The Seas of Wexford candidate SPA, announced in January 2024, has been included in this assessment.

[2] https://sac.jncc.gov.uk/species/S1106/
[3] https://sac.jncc.gov.uk/species/S1096/

Table 4-6 Relevant Natura 2000 sites and Source-Pathway-Receptor Connection Identification

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
Irish SACs				
Rockabill to Dalkey Island SAC (003000)	**Reefs [1170]** **Harbour Porpoise (*Phocoena phocoena*) [1351]**	2.64	The site investigation activities may be undertaken in close proximity to this Natura 2000 site, there is a possible source-pathway-receptor connection to the designated Annex I habitat QI. A source-pathway-receptor connection is possible for the **harbour porpoise (*Phocoena phocoena)*** which could move into the site investigation area and be impacted by disturbances from vibration and underwater noise and by injury due to collision with survey vessels or sampling equipment.	**Y for Reefs** **Y (for Harbour Porpoise *Phocoena phocoena*)**
Lambay Island SAC (000204)	Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] ***Halichoerus grypus* (Grey Seal) [1364]** ***Phoca vitulina* (Harbour Seal) [1365]**	14.82	All site investigation activities are located outside of any Natura 2000 site therefore there is no source-pathway-receptor connection and there will be no direct impact to the designated Annex I habitats at the Lambay Island SAC. The Maritime Usage Licence Area is within range of the **Grey Seal (*Halichoerus grypus*) and *Phoca vitulina* (Harbour Seal)**. A source-pathway-receptor connection is possible for grey seals and harbour seals who could move into the area and be impacted by disturbance from vibration/underwater noise and by injury due to collision with survey vessels or equipment.	N (All Annex I Habitat QIs) **Y (Grey Seal (*Halichoerus grypus*)** **Y (Harbour Seal (*Phoca Vitulina*)**
Boyne Coast and Estuary SAC (001957)	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140]	8.93	All site investigation activities are located outside of any Natura 2000 site therefore there is no source-pathway-receptor connection and there will be no direct impact to the designated Annex I habitats at the Boyne Coast and Estuary SAC.	N (All Annex I Habitat Qis)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	Annual vegetation of drift lines [1210] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]			
Rogerstown Estuary SAC (0002028)	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] Mediterranean salt meadows (*Juncetalia 39harenta*) [1410] Shifting dunes along the shoreline with Ammophila	15.89	All site investigation activities are located outside of any Natura 2000 site therefore there is no source-pathway-receptor connection and there will be no direct impact to the designated Annex I habitats at the Rogerstown Estuary SAC.	N (All Annex I Habitat Qis)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	arenaria (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]			
River Boyne And River Blackwater SAC (002299)	Alkaline fens [7230] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] ***Lampetra fluviatilis* (River Lamprey) [1099]** *Salmo salar* (Salmon) [1106] ***Lutra lutra* (Otter) [1355]**	16.10	All site investigation activities are located outside of any Natura 2000 site therefore there is no source-pathway-receptor connection and there will be no direct impact to the designated Annex I habitats at the River Boyne and River Blackwater SAC. A source-pathway-receptor connection is possible for **River Lamprey (*Lampetra fluviatilis)*** as the Maritime Usage Licence Area is within their range. A source-pathway-receptor connection is not possible for otters (*Lutra lutra)* as the Maritime Usage Licence Area is outside their range.	N (All Annex I Habitat Qis) **Y (River Lamprey *Lampetra fluviatilis*)** N (Otter, *Lutra lutra)*
Slaney River Valley SAC (000781)	*Petromyzon marinus* (Sea Lamprey) [1095] *Lampetra fluviatilis* (River Lamprey) [1099] *Alosa fallax fallax* (Twaite Shad) [1103] *Salmo salar* (Salmon) [1106] *Lutra lutra* (Otter) [1355] ***Phoca vitulina* (Harbour Seal) [1365]** *Lampetra planeri* (Brook Lamprey) [1096]	145.59	All site investigation activities are located outside of any Natura 2000 site therefore there is no source-pathway-receptor connection and there will be no direct impact to the designated Annex I habitats at the Slaney River Valley SAC. The Maritime Usage Licence Area is within range of the Salmon (*Salmo salar*). A source-pathway-receptor connection is not possible for salmon, as salmon is an andromous fish which spawns in rivers and is only offered protection under Annex II of the EU Habitats directive when in freshwater. A source-pathway-receptor connection is not possible for otters as the Maritime Usage Licence Area is outside of their range.	N (Annex I Habitat QIs) **Y (Harbour Seal (*Phoca vitulina)*** N (Sea Lamprey *Petromyzon marinus*) N (River Lamprey (*Lampetra fluviatilis*) N Twaite Shad (*Alosa fallax fallax*)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
			The Maritime Usage Licence Area is within range of mobile ***Phoca vitulina* (Harbour Seal)***.* A source-pathway-receptor connection is possible for grey seals who could move into the investigation area and be impacted by disturbance from vibration/underwater noise and by injury due to collision with survey vessels or equipment. A source-pathway-receptor connection is not possible for Sea Lamprey, River Lamprey & Twaite Shad as the Maritime Usage Licence Area is outside of their range.	
Saltee Islands SAC (000707)	***Halichoerus grypus* (Grey Seal) [1364]** Mudflats and sandflats not covered by seawater at low tide [1140] Large shallow inlets and bays [1160] Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Submerged or partially submerged sea caves [8330]	174.14	All site investigation activities are located outside of any Natura 2000 site therefore there is no source-pathway-receptor connection and there will be no direct impact to the designated Annex I habitats at the Saltee Islands SAC. The Maritime Usage Licence Area is within range of mobile **Grey Seal (*Halichoerus grypus)***. A source-pathway-receptor connection is possible for grey seals who could move into the investigation area and be impacted by disturbance from vibration/underwater noise and by injury due to collision with survey vessels or equipment.	N (All Annex I Habitat Qis) **Y (Grey Seal *Halichoerus grypus*)**
Horn Head and Rinclevan SAC (000147)	Embryonic shifting dunes [2110] Shifting dunes along the shoreline with Ammophila	304.53	All site investigation activities are located outside of any Natura 2000 site therefore there will be no direct impact to most of the	N (all other Habitats and QIs)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	arenaria (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Dunes with Salix repens ssp. Argentea (Salicion arenariae) [2170] Humid dune slacks [2190] Machairs (* in Ireland) [21A0] Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] *Vertigo geyeri* (Geyer's Whorl Snail) [1013] ***Halichoerus grypus* (Grey Seal) [1364]** *Petalophyllum ralfsii* (Petalwort) [1395] *Najas flexilis* (Slender Naiad) [1833]		designated Annex I habitat within Natura 2000 sites at Horn Head and Rinclevan SAC. A source-pathway-receptor connection is not possible for otters as the Maritime Usage Licence Area is outside of their range. The Maritime Usage Licence Area is within the range of the ***Halichoerus grypus* (Grey Seal).** A source pathway receptor connection is possible for the grey seals which could move within the proposed site investigation area and be impacted by disturbances from vibration and underwater noise and by injury due to collision with survey vessels or sampling equipment.	**Y (Grey Seal *Halichoerus grypus)***

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
Slieve Tooey/ Tormore Island/Loughros Beg Bay SAC (000190)	***Halichoerus grypus* (Grey Seal) [1364]** *Lutra lutra* (Otter) [1355]	375.12	All site investigation activities are located outside of any Natura 2000 site therefore there will be no direct impact to most of the designated Annex I habitat within Natura 2000 sites at Slieve Tooey SAC. A source-pathway-receptor connection is not possible for otters as the Maritime Usage Licence Area is outside of their range. The Maritime Usage Licence Area is within the range of the ***Halichoerus grypus* (Grey Seal)** A source pathway receptor connection is possible for the grey seals and harbour porpoise which could move within the proposed site investigation area and be impacted by disturbances from vibration and underwater noise and by injury due to collision with survey vessels or sampling equipment.	N (*Lutra lutra* Otter) **Y (Grey Seal *Halichoerus grypus)***
Roaringwater Bay And Islands SAC (000101)	*Lutra lutra* (Otter) [1355] ***Halichoerus grypus* (Grey Seal) [1364]** ***Phocoena phocoena* (Harbour Porpoise) [1351]**	387.83	All site investigation activities are located outside of any Natura 2000 site therefore there will be no direct impact to most of the designated Annex I habitat within Natura 2000 sites at Roaringwater Bay and Islands SAC. A source-pathway-receptor connection is not possible for otters as the Maritime Usage Licence Area is outside of their range. The Maritime Usage Licence Area is within the range of the ***Halichoerus grypus* (Grey Seal)** and ***Phocoena phocoena* (Harbour Porpoise)**.	N (*Lutra lutra* Otter) N (all other Habitats and QIs) **Y (Grey Seal *Halichoerus grypus)*** **Y (Harbour Porpoise *Phocoena phocoena*)**

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
			A source pathway receptor connection is possible for the grey seals and harbour porpoise which could move within the proposed site investigation area and be impacted by disturbances from vibration and underwater noise and by injury due to collision with survey vessels or sampling equipment.	
Blasket Islands SAC (002172)	*Halichoerus grypus* (Grey Seal) [1364] ***Phocoena phocoena* (Harbour Porpoise) [1351]**	503.93	All site investigation activities are located outside of any Natura 2000 site therefore there is no source-pathway-receptor connection and there will be no direct impact to the designated Annex I habitats at the Blasket Island SAC. The Maritime Usage Licence Area is within range of the ***Phocoena phocoena* (Harbour Porpoise)**. A source-pathway-receptor connection is possible for grey seals and harbour porpoise who could move into the area and be impacted by disturbance from vibration/underwater noise and by injury due to collision with survey vessels or equipment.	N (All Annex I Habitat Qis) N (Grey Seal (*Halichoerus grypus*) **Y (Harbour Porpoise (*Phocoena phocoena*)**
UK SACs				
North Anglesey Marine / Gogledd Môn Forol SAC (UK0030398)	***Phocoena phocoena* (Harbour Porpoise) [1351]**	35.35	The Maritime Usage Licence Area is within the range of the **Harbour Porpoise (*Phocoena phocoena*)**. A source-pathway-receptor connection is possible for harbour porpoises who could move into the Maritime Usage Licence Area and be impacted by disturbance from from vibration/underwater noise and by injury due to collision with survey vessels or equipment.	**Y** **Harbour Porpoise (*Phocoena phocoena*)**
Murlough (UK0016612)	***Phoca vitulina* (Harbour Seal) [1365]**	41.52	The Maritime Usage Licence Area is within the range of the **Grey Seal (*Halichoerus* grypus)** QI.	**Y (*Phoca vitulina* (Harbour Seal)**

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
			A source-pathway-receptor connection is possible for bottlenose dolphins and grey seals who could move into the Maritime Usage Licence Area and be impacted by disturbance from from vibration/underwater noise and by injury due to collision with survey vessels or equipment.	
Strangford Lough SAC (UK0016618)	***Phoca vitulina* (Harbour Seal) [1365]**	67.71	The Maritime Usage Licence Area is within the range of the ***Phoca vitulina* (Harbour Seal)** QI. A source-pathway-receptor connection is possible for harbour seal who could move into the Maritime Usage Licence Area and be impacted by disturbance from from vibration/underwater noise and by injury due to collision with survey vessels or equipment.	**Y (Harbour Seal (*Phoca Vitulina*)**
North Channel SAC (UK0030399)	***Phocoena phocoena* (Harbour Porpoise) [1351]**	74.26	The Maritime Usage Licence Area is within the range of the **Harbour Porpoise *Phocoena phocoena*)**. A source-pathway-receptor connection is possible for harbour porpoises who could move into the Maritime Usage Licence Area and be impacted by disturbance from from vibration/underwater noise and by injury due to collision with survey vessels or equipment.	**Y (Harbour Porpoise (*Phocoena phocoena*)**
West Wales Marine SAC (UK0030397)	***Phocoena phocoena* (Harbour Porpoise) [1351]**	103.40	The Maritime Usage Licence Area is within the range of the **Harbour Porpoise *Phocoena phocoena*)**. A source-pathway-receptor connection is possible for harbour porpoises who could move into the Maritime Usage Licence Area and be impacted by disturbance from from vibration/underwater noise and by injury due to collision with survey vessels or equipment.	**Y (Harbour Porpoise *Phocoena phocoena*)**

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau SAC (UK 0013117)	***Halichoerus grypus* (Grey Seal) [1364]** *Lutra lutra* (Otter) [1355] ***Tursiops 46harentai* (Bottlenose Dolphin) [1349]**	106.82	The Maritime Usage Licence Area is within the range of the **Bottlenose Dolphin (*Tursiops 46harentai)* and Grey Seal (*Halichoerus* grypus)**. A source-pathway-receptor connection is possible for bottlenose dolphins and grey seals who could move into the Maritime Usage Licence Area and be impacted by disturbance from from vibration/underwater noise and by injury due to collision with survey vessels or equipment. A source-pathway-receptor connection is not possible for otters as the Maritime Usage Licence Area is outside of their range.	**Y (Bottlenose Dolphin (*Tursiops 46harentai*)** **Y (Grey Seal (*Halichoerus* grypus)** N (Otter, *Lutra lutra)*
The Maidens SAC (UK 0030384)	***Halichoerus grypus* (Grey Seal) [1364]**	135.57	The Maritime Usage Licence Area is within the range of the **Grey Seal (*Halichoerus grypus*)**. A source pathway receptor connection is possible for the Grey seal, which could move within the proposed site investigation area and be impacted by disturbances from vibration and underwater noise and by injury due to collision with survey vessels or sampling equipment.	**Y (Grey Seal (*Halichoerus grypus*)**
Cardigan Bay/ Bae Ceredigion SAC (UK0012712)	***Tursiops 46harentai* (Bottlenose Dolphin)** *Petromyzon marinus* (Sea Lamprey) [1095] *Lampetra fluviatilis* (River Lamprey) [1099] ***Halichoerus grypus* (Grey Seal) [1364]**	161.94	The Maritime Usage Licence Area is within the range of the **Bottlenose Dolphin (*Tursiops 46harentai)* and Grey Seal (*Halichoerus grypus*)**. A source-pathway-receptor connection is possible for bottlenose dolphins and grey seals who could move into the Maritime Usage Licence Area and be impacted by disturbance from from vibration/ underwater noise and by injury due to collision with survey vessels or equipment.	**Y (Bottlenose Dolphin (*Tursiops 46harentai*)** N (Sea Lamprey (*Petromyzon marinus*) N (River Lamprey (*Lampetra fluviatilis*)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
			There is no source-pathway-receptor connection for Sea lamprey and River lamprey as the Maritime Usage Licence Application Area is outside of their range.	**Y (Grey Seal (*Halichoerus grypus*)**
Pembrokeshire Marine SAC (UK0013116)	***Halichoerus grypus* (Grey seal) [1364]** *Petromyzon marinus* (Sea lamprey) [1095] *Lampetra fluviatilis* (River lamprey) [1099] *Alosa fallax fallax* (Twaite shad) [1103] *Alosa alosa* (Allis shad) [1102] *Lutra lutra* (Otter) [1355]	186.02	The Maritime Usage Licence Area is within the range of the ***Halichoerus grypus* (Grey seal)**. A source-pathway-receptor connection is possible for grey seal who could move into the Maritime Usage Licence Area and be impacted by disturbance from from vibration/ underwater noise and by injury due to collision with survey vessels or equipment. A source-pathway-receptor connection is not possible for otters, Sea lamprey, River lamprey, Twaite shad and Allis shad as the Maritime Usage Licence Area is outside of their range. A source-pathway-receptor connection is not possible for otters as the Maritime Usage Licence Area is outside of their range.	***Y* Grey seal *Halichoerus grypus*)** N (Sea lamprey *Petromyzon marinus*) N (River lamprey *(Lampetra fluviatilis*) N *(*Twaite shad *(Alosa fallax fallax)* N (Allis shad *(Alosa alosa*) N (Otter *Lutra lutra)*
South-East Islay Skerries (UK0030067)	***Phoca vitulina* (Harbour Seal) [1365]**	221.22	The Maritime Usage Licence Area is within the range of the ***Phoca vitulina* (Harbour Seal).** A source-pathway-receptor connection is possible for harbour seal who could move into the Maritime Usage Licence Area and be impacted by disturbance from from vibration/ underwater noise and by injury due to collision with survey vessels or equipment.	**Y (Harbour seal, *Phoca vitulina)***

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC (UK 0030396)	***Phocoena phocoena*** **(Harbour porpoise) [1351]**	246.78	The Maritime Usage Licence Area is within the range of the **Harbour Porpoise (*Phocoena phocoena*)**. A source pathway receptor connection is possible for the harbour porpoise which could move within the proposed site investigation area and be impacted by disturbances from vibration and underwater noise and by injury due to collision with survey vessels or sampling equipment.	**Y (Harbour Porpoise (*Phocoena phocoena*)**
Lundy SAC (UK0013114)	***Halichoerus grypus*** **(Grey Seal) [1364]**	281.33	The Maritime Usage Licence Area is within the range of the ***Halichoerus grypus*** **(Grey Seal)**. A source pathway receptor connection is possible for the grey seals which could move within the proposed site investigation area and be impacted by disturbances from vibration and underwater noise and by injury due to collision with survey vessels or sampling equipment.	**Y (*Halichoerus grypus* (Grey Seal)**

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
Treshnish Isles (UK0030289)	***Halichoerus grypus* (Grey Seal) [1364]**	322.25	The Maritime Usage Licence Area is within the range of the ***Halichoerus grypus* (Grey Seal)**. A source pathway receptor connection is possible for the grey seals which could move within the proposed site investigation area and be impacted by disturbances from vibration and underwater noise and by injury due to collision with survey vessels or sampling equipment.	**Y (*Halichoerus grypus* (Grey Seal)**
Isles of Scilly Complex SAC (UK0013694)	***Halichoerus grypus* (Grey Seal) [1364]**	401.56	The Maritime Usage Licence Area is within the range of the ***Halichoerus grypus* (Grey Seal)**. A source pathway receptor connection is possible for the grey seals which could move within the proposed site investigation area and be impacted by disturbances from vibration and underwater noise and by injury due to collision with survey vessels or sampling equipment.	**Y (*Halichoerus grypus* (Grey Seal)**
French SACs				
Mers Celtiques – Talus du golfe de Gascogne FR5212016	***Phocoena phocoena* (Harbour Porpoise)**	499.93	Part of the Maritime Usage Licence Area is within the range of the **Harbour Porpoise *Phocoena phocoena*)**. A source-pathway-receptor connection is possible for harbour porpoises and bottlenose dolphins who could move into the Maritime Usage Licence Area and be impacted by disturbance from from vibration/underwater noise and by injury due to collision with survey vessels or equipment.	**Y Harbour Porpoise (*Phocoena phocoena*)**
Abers – Côte des legends FR5300017		569.02		
Ouessant-Molène FR5310072		570.17		

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
Nord Bretagne DH FR2502022		528.65		
Cote de Granit Rose-Sept Iles FR5310011		577.04		
Tregor Goëlo FR5310070		599.97		
Côtes de Crozon FR5302006		607.96		
Chaussée de Sein FR5302007		618.96		
Récifs du talus du golfe de Gascogne FR5302016		634.98		
Récifs et landes de la Hague FR2500084		665.42		
Anse de Vauville FR2502019	***Phocoena phocoena* (Harbour Porpoise)**	666.65	Part of the Maritime Usage Licence Area is within the range of the **Harbour Porpoise *Phocoena phocoena*)**. A source-pathway-receptor connection is possible for harbour porpoises and bottlenose dolphins who could move into the Maritime Usage Licence Area and be impacted by disturbance from from vibration/underwater noise and by injury due to collision with survey vessels or equipment.	**Y Harbour Porpoise (*Phocoena phocoena*)**
Cap d'Erquy-Cap Fréhel FR5300011		668.00		
Baie de Saint-Brieuc – Est FR5300066		657.8		

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
Banc et récifs de Surtainville FR2502018		669.00		
Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard FR5300012		693.97		
Chausey FR2510037		692.53		
Estuaire de la Rance FR5300061		708.36		
Baie du Mont Saint Michel FR2510048		718.06		
SPAs				
North-West Irish Sea cSPA (004236)	**Common Scoter (*Melanitta nigra*) [A065]** **Red-throated Diver (*Gavia stellata*) [A001]** **Great Northern Diver (*Gavia immer*) [A003]**	Overlap	The Maritime Usage Licence is within the North-West Irish Sea cSPA. A possible source-pathway-receptor connection has been identified for these SCIs, who could be impacted by visual and noise disturbance as a result of investigation activities.	**Y (All SCIs)**

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	Fulmar (*Fulmarus glacialis*) [A009] **Manx Shearwater (*Puffinus puffinus*) [A013]** **Shag (*Phalacrocorax aristotelis*) [A018]** **Cormorant (*Phalacrocorax carbo*) [A017]** **Little Gull (*Larus minutus*) [A177]** **Kittiwake (*Rissa tridactyla*) [A188]** **Black-headed Gull (*Chroicocephalus ridibundus*) [A179]** **Common Gull (*Larus canus*) [A182]** **Lesser Black-backed Gull (*Larus fuscus*) [A183]** **Herring Gull (*Larus argentatus*) [A184]**		Note Ministerial Direction 4236 lists Activities Requiring Consents (ARCs) within the site[4].	

[4] https://www.npws.ie/sites/default/files/protected-sites/minsterial_direction/MD004236.pdf

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	Great Black-backed Gull (*Larus marinus*) [A187] **Little Tern (*Sterna albifrons*) [A195]** **Roseate Tern (*Sterna dougallii*) [A192]** **Common Tern (*Sterna hirundo*) [A193]** **Arctic Tern (*Sterna paradisaea*) [A194]** **Puffin (*Fratercula arctica*) [A204]** **Razorbill (*Alca torda*) [A200]** **Guillemot (*Uria aalge*) [A199]**			
Rockabill SPA (004014)	**Common Tern (*Sterna hirundo*) [A193]** **Arctic Tern (*Sterna paradisaea*) [A194]** Purple Sandpiper (*Calidris maritima*) [A148] **Roseate Tern (*Sterna dougallii*) [A192]**	0.20	The Maritime Usage Licence Area is within range of the pelagic bird species **Common Tern (*Sterna hirundo*), Arctic Tern (*Sterna paradisaea*) & Roseate Tern (*Sterna dougallii*)** SCI at Rockabill SPA. A possible source-pathway-receptor connection has been identified for these SCIs, who could move into the site investigation area and be impacted by visual and noise	**Y (Common Tern (*Sterna hirundo*)** **Y Artic Tern (*Sterna paradisaea*)** **Y Roseate Tern (*Sterna dougallii*)**

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
			disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no source-pathway-receptor connection to the other SCI.	N (Other SCIs)
River Nanny Estuary and Shore SPA (004158)	**Herring Gull (*Larus argentatus*) [A184]** Oystercatcher (*Haematopus ostralegus)* [A130] Ringed Plover (*Charadrius hiaticula*) [A137] Golden Plover (*Pluvialis apricaria*) [A140] Knot (*Calidris canutus*) [A143] Sanderling (*Calidris alba*) [A144] Wetland and Waterbirds [A999]	3.51	The Maritime Usage Licence Area is within range of the pelagic bird species **Herring Gull (*Larus argentatus*)** SCI at River Nanny Estuary and Shore SPA. A possible source-pathway-receptor connection has been identified for this SCI, who could move into the site investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no source-pathway-receptor connection to the other SCIs.	**Y (Herring Gull *Larus argentatus*)** N (Other SCIs)
Skerries Islands SPA (004122)	**Herring Gull (*Larus argentatus)* [A184]** **Cormorant (*Phalacrocorax carbo*) [A017]** **Shag (*Phalacrocorax aristotelis*) [A018]** Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]	5.15	The Maritime Usage Licence Area is within range of the pelagic bird species **Herring Gull (*Larus argentatus*) & Cormorant (Phalacrocorax carbo) Shag (*Phalacrocorax aristotelis*)** SCIs at Skerries Islands SPA. A source-pathway-receptor connection is possible for these SCIs, who could move into the site investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the	**Y (Herring Gull (*Larus argentatus*)** **Y (Cormorant (*Phalacrocorax carbo*)** **Y (Shag (*Phalacrocorax aristotelis*)**

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	Purple Sandpiper (*Calidris maritima*) [A148] Turnstone (*Arenaria interpres*) [A169]		breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no source-pathway-receptor connection to the other SCIs.	N (Other SCIs)
Boyne Estuary SPA (004080)	Shelduck (Tadorna tadorna) [A048] Oystercatcher (Haematopus ostralegus) [A130] Golden Plover (Pluvialis apricaria) [A140] Grey Plover (Pluvialis squatarola) [A141] Lapwing (Vanellus vanellus) [A142] Knot (Calidris canutus) [A143] Sanderling (Calidris alba) [A144] Black-tailed Godwit (Limosa limosa) [A156] Redshank (Tringa totanus) [A162] Turnstone (Arenaria interpres) [A169] Little Tern (Sterna albifrons) [A195] Wetland and Waterbirds [A999]	10.64	All site investigation activities are located outside this Natura 2000 site, therefore there is no source-pathway-receptor connection and there will be no direct impact to the designated Wetland and Waterbird SCs at Boyne Estuary SPA.	N (SCIs)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
Lambay Island SPA (004069)	**Fulmar (*Fulmarus glacialis*) [A009]** **Cormorant (*Phalacrocorax carbo*) [A017]** **Shag (*Phalacrocorax aristotelis*) [A018]** **Herring Gull (*Larus argentatus*) [A184]** **Kittiwake *(Rissa tridactyla*) [A188]** **Guillemot (*Uria aalge*) [A199]** **Razorbill (*Alca torda*) [A200]** **Puffin (*Fratercula arctica*) [A204]** Greylag Goose (*Anser anser*) [A043] **Lesser Black-backed Gull (*Larus fuscus*)** [A183]	14.50	The Maritime Usage Licence Area is within the range of the pelagic bird species **Fulmar (*Fulmarus glacialis*), Cormorant (*Phalacrocorax carbo*), Shag (*Phalacrocorax aristotelis*), Herring Gull (*Larus argentatus*), Kittiwake *(Rissa tridactyla*), Guillemot (*Uria aalge*), Razorbill (*Alca torda*), Puffin (*Fratercula arctica*) & Lesser Black-backed Gull (*Larus fuscus*)** SCIs at Lambay Island. A possible source pathway-receptor-connection has been identified for this SCI, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. There is no source-pathway-receptor connection at the SPA to the other SCI.	**Y Fulmar (*Fulmarus glacialis*),** **Y Cormorant (*Phalacrocorax carbo*),** **Y Shag (*Phalacrocorax aristotelis*),** **Y Herring Gull (*Larus argentatus*),** **Y Kittiwake *(Rissa tridactyla*),** **Y Guillemot (*Uria aalge*),** **Y Razorbill (*Alca torda*),** **Y Puffin (*Fratercula arctica*) &** **Y Lesser Black-backed Gull (*Larus fuscus*)** N (Other SCI)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
Rogerstown Estuary SPA (004015)	Greylag Goose (Anser anser) [A043] Light-bellied Brent Goose (Branta bernicla hrota) [A046] Shelduck (Tadorna tadorna) [A048] Shoveler (Anas clypeata) [A056] Oystercatcher (Haematopus ostralegus) [A130] Ringed Plover (Charadrius hiaticula) [A137] Grey Plover (Pluvialis squatarola) [A141] Knot (Calidris canutus) [A143] Dunlin (Calidris alpina) [A149] Black-tailed Godwit (Limosa limosa) [A156] Redshank (Tringa totanus) [A162] Wetland and Waterbirds [A999]	14.71	All site investigation activities are located outside this Natura 2000 site, therefore there is no source-pathway-receptor connection and there will be no direct impact to the designated Wetland and Waterbird SCs at Rogerstown Estuary SPA.	N (SCIs)
Malahide Estuary SPA (004025)	Great Crested Grebe (Podiceps cristatus) [A005] Light-bellied Brent Goose (Branta bernicla hrota) [A046]	20.98	All site investigation activities are located outside this Natura 2000 site, therefore there is no source-pathway-receptor connection and there will be no direct impact to the designated Wetland and Waterbird SCs at Malahide Estuary SPA.	N (SCIs)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	Shelduck (Tadorna tadorna) [A048] Pintail (Anas acuta) [A054] Goldeneye (Bucephala clangula) [A067] Red-breasted Merganser (Mergus serrator) [A069] Oystercatcher (Haematopus ostralegus) [A130] Golden Plover (Pluvialis apricaria) [A140] Grey Plover (Pluvialis squatarola) [A141] Knot (Calidris canutus) [A143] Dunlin (Calidris alpina) [A149] Black-tailed Godwit (Limosa limosa) [A156] Bar-tailed Godwit (Limosa lapponica) [A157] Redshank (Tringa totanus) [A162] Wetland and Waterbirds [A999]			
Dundalk Bay SPA (004026)	Great Crested Grebe (*Podiceps cristatus*) [A005] Greylag Goose (Anser anser) [A043]	21.83	The Maritime Usage Licence Area is within range of the pelagic bird species **Common Gull (*Larus canus*)** and **Herring Gull (*Larus argentatus*)** at Dundalk Bay SPA.	**Y (Common Gull *Larus canus*)** **Y (Herring Gull *Larus argentatus*)**

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Shelduck (*Tadorna tadorna*) [A048] Teal (*Anas crecca*) [A052] Mallard (*Anas platyrhynchos*) [A053] Pintail (*Anas acuta*) [A054] Common Scoter (*Melanitta nigra*) [A065] Red-breasted Merganser (*Mergus serrator*) [A069] Oystercatcher (*Haematopus ostralegus*) [A130] Ringed Plover (*Charadrius hiaticula*) [A137] Golden Plover (*Pluvialis apricaria*) [A140] Grey Plover (*Pluvialis squatarola*) [A141] Lapwing (*Vanellus vanellus*) [A142] Knot (*Calidris canutus*) [A143] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157]		A possible source-pathway-receptor connection has been identified for these SCIs, who could move into the site investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no source-pathway-receptor connection to the other SCIs.	N (Other SCIs)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	Curlew (*Numenius arquata*) [A160] Redshank (*Tringa 60harent*) [A162] Black-headed Gull (*Chroicocephalus ridibundus*) [A179] **Common Gull (*Larus canus*) [A182]** **Herring Gull (*Larus argentatus*) [A184]** Wetland and Waterbirds [A999]			
Ireland's Eye SPA (004117)	**Cormorant (*Phalacrocorax carbo*) [A017]** **Herring Gull *(Larus argentatus*) [A184]** **Kittiwake (*Rissa tridactyla*) [A188]** **Guillemot (*Uria aalge*) [A199]** **Razorbill (*Alca torda*) [A200].**	25.21	The Maritime Usage Licence Area is within range of the pelagic bird species **Cormorant (*Phalacrocorax carbo*), Herring Gull (*Larus argentatus*), Kittiwake (*Rissa tridactyla*), Guillemot (*Uria aalge*)** and **Razorbill (*Alca torda*)** at the Ireland's Eye SPA. A possible source-pathway-receptor connection has been identified for these SCIs, who could move into the site investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities.	**Y Cormorant (*Phalacrocorax carbo*)** **Y Herring Gull (*Larus argentatus*)** **Y Kittiwake (*Rissa tridactyla*)** **Y Guillemot (*Uria aalge*)** **Y Razorbill (*Alca torda*)**

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
Baldoyle Bay SPA (004016)	Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Shelduck (*Tadorna tadorna*) [A048] Ringed Plover (*Charadrius hiaticula*) [A137] Golden Plover (*Pluvialis apricaria*) [A140] Grey Plover (*Pluvialis squatarola*) [A141] Bar-tailed Godwit *(Limosa lapponica*) [A157] Wetland and Waterbirds [A999]	26.19	All site investigation activities are located outside this Natura 2000 site, therefore there is no source-pathway-receptor connection and there will be no direct impact to the designated Wetland and Waterbird SCs at Baldoyle Bay SPA.	N (SCIs)
Howth Head Coast SPA (004113)	**Kittiwake (*Rissa tridactyla*) [A188]**	27.17	The Maritime Usage Licence Area is within range of the pelagic bird species **Kittiwake (*Rissa tridactyla*)** SCI at the Howth Head Coast SPA. A possible source-pathway-receptor connection has been identified for this SCI, who could move into the site investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities.	**Y** **Kittiwake (*Rissa tridactyla*)**
North Bull Island SPA (004003)	Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Shelduck (*Tadorna tadorna*) [A048] Teal (*Anas crecca*) [A052]	33.27	The Maritime Usage Licence Area is within range of the pelagic bird species **Black-headed Gull (*Chroicocephalus ridibundus*)** SCI at the North Bull Island SPA. A possible source-pathway-receptor connection has been identified for this SCI, who could move into the site investigation	**Y Black-headed Gull (*Chroicocephalus ridibundus*)** N (Other SCIs)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	Pintail (*Anas acuta*) [A054] Shoveler (*Anas clypeata*) [A056] Oystercatcher (*Haematopus ostralegus*) [A130] Golden Plover (*Pluvialis apricaria*) [A140] Grey Plover (*Pluvialis squatarola*) [A141] Knot (*Calidris canutus*) [A143] Sanderling (*Calidris alba*) [A144] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa)* [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157] Curlew (*Numenius arquata*) [A160] Redshank (*Tringa 62harent*) [A162] Turnstone (*Arenaria interpres*) [A169] **Black-headed Gull (*Chroicocephalus ridibundus*) [A179]** Wetland and Waterbirds [A999]		area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no source-pathway-receptor connection to the other SCIs.	

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
South Dublin Bay and River Tolka Estuary SPA (004024)	**Common Tern (*Sterna hirundo*) [A193]** **Arctic Tern (*Sterna paradisaea*) [A194]** Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Oystercatcher (*Haematopus ostralegus*) [A130] Ringed Plover (*Charadrius hiaticula*) [A137] Grey Plover (*Pluvialis squatarola*) [A141] Knot (*Calidris canutus*) [A143] Sanderling (*Calidris alba*) [A144] Dunlin (*Calidris alpina*) [A149] Bar-tailed Godwit (*Limosa lapponica*) [A157] Redshank (*Tringa 63harent*) [A162] **Black-headed Gull (*Chroicocephalus ridibundus*)** [A179] **Roseate Tern (*Sterna dougallii*)** [A192] Wetland and Waterbirds [A999]	37.61	The Maritime Usage Licence Area is within range of the pelagic bird species **Common Tern (*Sterna hirundo*) & Arctic Tern (*Sterna paradisaea*) Black-headed Gull (*Chroicocephalus ridibundus*) Roseate Tern (*Sterna dougallii* SCI** at the South Dublin Bay and River Tolka Estuary SPA. A possible source-pathway-receptor connection has been identified for this SCI, who could move into the site investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no source-pathway-receptor connection to the other SCIs.	**Y – Arctic Tern (*Sterna paradisaea*)** **Y Common Tern (*Sterna hirundo*)** **Y Black-headed Gull (*Chroicocephalus ridibundus*)** **Y Roseate Tern (*Sterna dougallii*** N (Other SCIs)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
Dalkey Islands SPA (004172)	**Roseate Tern (*Sterna dougallii)*** [A192] **Common Tern (*Sterna hirundo*)** [A193] **Arctic Tern (*Sterna paradisaea*)** [A194]	39.57	The Maritime Usage Licence Area is within range of the **Arctic Tern (*Sterna paradisaea*)** SCI at the Dalkey Islands SPA. A possible source-pathway-receptor connection has been identified for these SCI, who could move into the site investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no source-pathway-receptor connection to the other SCIs.	N (Roseate Tern (*Sterna dougallii)* N (Common Tern (*Sterna hirundo*) **Y (Arctic Tern (*Sterna paradisaea*)**
The Murrough SPA (004186)	**Black-headed Gull (*Chroicocephalus ridibundus*) [A179]** **Herring Gull *(Larus argentatus*) [A184]** **Little Tern (*Sterna albifrons*) [A195]** Red-throated Diver *(Gavia stellata*) [A001] Greylag Goose (*64haren 64haren*) [A043] Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Wigeon (*Anas penelope*) [A050] Teal (*Anas crecca*) [A052]	59.09	The Maritime Usage Licence Area is within range of the **Black-headed Gull (*Chroicocephalus ridibundus*),** **Herring Gull *(Larus argentatus*) Little Tern (*Sterna albifrons*)** SCI at the Murrough SPA. A possible source-pathway-receptor connection has been identified for Black headed gull & herring gull SCIs, who could move into the site investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no source-pathway-receptor connection to the other SCIs.	**Y Little Tern (*Sterna albifrons*)** **’** **Y** **(Herring Gull *(Larus argentatus*)** N (Black-headed Gull (*Chroicocephalus ridibundus*), N (Other SCIs)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	Wetland and Waterbirds [A999]			
Wicklow Head SPA (004127)	**Kittiwake (*Rissa tridactyla*) [A188]**	70.53	The Maritime Usage Licence Area is within the range of the pelagic bird species **Kittiwake (*Rissa* tridactyla)** at Wicklow Head SPA. A possible source pathway-receptor-connection has been identified for the Kittiwake, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season.	**Y (Kittiwake *Rissa* tridactyla)**
Poulaphouca Reservoir SPA (004063)	**Lesser Black-backed Gull (*Larus fuscus*) [A183]** Greylag Goose (*Anser anser*) [A043]	72.83	The Maritime Usage Licence Area is within range of the pelagic species **Lesser Black-backed Gull (*Larus fuscus*)** at the Poulaphouca Reservoir SPA. A possible source-pathway-receptor connection has been identified for this SCI, who could move into the site investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no source-pathway-receptor connection to the other SCI.	**Y (Lesser Black-backed Gull *Larus fuscus*)** N (Other SCI)
Wexford Harbour and Slobs SPA (004076)	**Lesser Black-backed Gull (*Larus fuscus*) [A183]** Little Grebe (*Tachybaptus ruficollis*) [A004] Great Crested Grebe (*Podiceps cristatus*) [A005]	146.71	The Maritime Usage Licence Area is within the range of the pelagic bird species **Lesser Black-backed Gull (*Larus fuscus*)** SCI at the Wexford Harbour and Slobs SPA. A possible source pathway-receptor-connection has been identified for the Lesser Black-backed Gull, who could move into the investigation area and be impacted by visual and noise	**Y (Lesser Black-backed Gull *Larus fuscus*)** N (Other SCIs)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	Cormorant (*Phalacrocorax carbo*) [A017] Grey Heron (*Ardea cinerea*) [A028] Bewick's Swan (*Cygnus columbianus bewickii*) [A037] Whooper Swan (*Cygnus cygnus*) [A038] Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Shelduck (*Tadorna tadorna*) [A048] Wigeon (*Anas penelope*) [A050] Teal (*Anas crecca*) [A052] Mallard (*Anas platyrhynchos*) [A053] Pintail (*Anas acuta*) [A054] Scaup (*Aythya marila*) [A062] Goldeneye (*Bucephala clangula*) [A067] Red-breasted Merganser (*Mergus serrator*) [A069] Hen Harrier (*Circus cyaneus*) [A082] Coot (*Fulica atra*) [A125] Oystercatcher (*Haematopus ostralegus*) [A130]		disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. There is no source-pathway-receptor connection to the other SCIs.	

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	Golden Plover *(Pluvialis apricaria*) [A140] Grey Plover (*Pluvialis squatarola*) [A141] Lapwing (*Vanellus vanellus*) [A142] Knot (*Calidris canutus*) [A143] Sanderling (*Calidris alba*) [A144] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157] Curlew (*Numenius arquata*) [A160] Redshank (*Tringa 67harent*) [A162] Black-headed Gull (*Chroicocephalus ridibundus*) [A179] Little Tern (*Sterna albifrons*) [A195] Greenland White-fronted Goose (*67haren albifrons flavirostris*) [A395] Wetland and Waterbirds [A999]			

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
Saltee Islands SPA (004002)	**Fulmar (*Fulmar glacialis*) [A009]** **Gannet (*Morus bassanus*) [A016]** **Kittiwake (*Rissa tridactyla*) [A188]** Puffin (*Fratercula arctica*) [A204] Guillemot (*Uria aalge*) [A199] Herring Gull (*Larus argentatus*) [A184] Razorbill (*Alca torda*) [A200] **Lesser Black-backed Gull (*Larus fuscus*) [A183]** Cormorant (*Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018]	178.74	The Maritime Usage Licence Area is within the range of the pelagic bird species listed **Fulmar (*Fulmar glacialis*)** **Gannet (*Morus bassanus*)** **Kittiwake (*Rissa tridactyla*)** and **Lesser Black-backed Gull (*Larus fuscus*)** for the Saltee Islands SPA. A possible source pathway-receptor-connection has been identified for this SCI, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. There is no source-pathway-receptor connection to the other SCIs.	**Y** **Fulmar (*Fulmar glacialis*)** **Gannet (*Morus bassanus*)** **Kittiwake (*Rissa tridactyla*)** **Lesser Black-backed Gull (*Larus fuscus*)** N (Other SCIs)
Seas off Wexford cSPA (004237)	**Fulmar (*Fulmarus glacialis*) [A009]** **Manx Shearwater (*Puffinus puffinus*) [A013]** **Gannet (*Morus bassanus*) [A016]** **Lesser Black-backed Gull (*Larus fuscus*) [A183]** **Kittiwake (*Rissa tridactyla*) [A188]**	118.88	The Maritime Usage Licence Area is within the range of the pelagic bird species **Guillemot (*Uria aalge*)**, **Razorbill (*Alca torda*)**, **Lesser Black-backed Gull (*Larus fuscus*)**, **Puffin (*Fratercula arctica*)**, **Kittiwake (*Rissa tridactyla*)**, **Gannet (*Morus bassanus*)**, **Fulmar (*Fulmarus glacialis*)** & **Manx Shearwater (*Puffinus puffinus*)** SCIs at the cSPA. A possible source pathway-receptor-connection has been identified for these SCIs, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance	**Y** **Guillemot (*Uria aalge*)** **Razorbill (*Alca torda*)** **Lesser Black-backed Gull (*Larus fuscus*)**

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	Guillemot (*Uria aalge*) [A199] **Razorbill (*Alca torda*) [A200]** **Puffin (*Fratercula arctica*) [A204]** Red-throated Diver (*Gavia stellata*) [A001] Cormorant (*Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018] Common Scoter (*Melanitta nigra*) [A065] Mediterranean Gull (*Larus melanocephalus*) [A176] Black-headed Gull (*Chroicocephalus ridibundus*) [A179] Herring Gull (*Larus argentatus*) [A184] Sandwich Tern (*Sterna sandvicensis*) [A191] Roseate Tern (*Sterna dougallii*) [A192] Common Tern (*Sterna hirundo*) [A193] Arctic Tern (*Sterna paradisaea*) [A194] Little Tern (*Sterna albifrons*) [A195]		due to noise as a result of investigation activities and disturbance during the breeding season. There is no source-pathway-receptor connection to the other SCIs at the Seas off Wexford cSPA.	**Puffin (*Fratercula arctica*)** **Kittiwake (*Rissa tridactyla*)** **Gannet (*Morus bassanus*)** **Fulmar (*Fulmarus glacialis*)** **Manx Shearwater (*Puffinus puffinus*)** N (Other SCIs)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
Helvick Head to Ballyquin SPA (004192)	Cormorant (*Phalacrocorax carbo*) [A017] Peregrine (*Falco peregrinus*) [A103] Herring Gull (*Larus argentatus*) [A184] **Kittiwake (*Rissa tridactyla*) [A188]** Chough (*Pyrrhocorax pyrrhocorax*) [A346]	244.86	The Maritime Usage Licence Area is within the range of the pelagic bird species **& Kittiwake (*Rissa tridactyla*)** SCI at the SPA. A possible source pathway-receptor-connection has been identified for this SCI, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. There is no source-pathway-receptor connection at Helvick Head to Ballyquin SPA to the other SCI.	**Y** **Kittiwake (*Rissa tridactyla*)** N (Other SCIs)
Horn Head to Fanad Head SPA (004194)	**Fulmar (*Fulmarus glacialis*) [A009]** Cormorant *(Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018] Barnacle Goose (*Branta leucopsis*) [A045] Peregrine (*Falco peregrinus*) [A103] **Kittiwake (*Rissa tridactyla*) [A188]** Guillemot (*Uria aalge*) [A199] Razorbill (*Alca torda*) [A200] Chough (*Pyrrhocorax pyrrhocorax*) [A346] Greenland White-fronted Goose (*70haren albifrons flavirostris*) [A395	304.51	The Maritime Usage Licence Area is within the range of the pelagic bird species **Fulmar (*Fulmarus glacialis*)** & **Kittiwake (*Rissa tridactyla*)** SCI at the SPA. A possible source-pathway-receptor connection has been identified for this SCI, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. There is no source-pathway-receptor connection for the other SCIs at the SPA	**Y (Fulmar *Fulmarus glacialis*)** **& Kittiwake (*Rissa tridactyla*)** N (Other SCIs)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
Tory Island SPA (004073)	**Fulmar (Fulmarus glacialis) [A009]** Corncrake (*Crex crex*) [A122] Razorbill (*Alca torda*) [A200] Puffin (*Fratercula arctica*) [A204]	3.17	The Maritime Usage Licence Area is within the range of the pelagic bird species **Fulmar (*Fulmarus glacialis*)** SCI at the SPA. A possible source-pathway-receptor connection has been identified for this SCI, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. There is no source-pathway-receptor connection for the other SCIs at the SPA	**Y (Fulmar *Fulmarus glacialis*)** N (Other SCIs)
West Donegal Coast SPA (004150)	**Fulmar (*Fulmarus glacialis*) [A009]** Cormorant (*Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018] Peregrine (*Falco peregrinus*) [A103] Herring Gull (*Larus argentatus*) [A184] Kittiwake (*Rissa tridactyla*) [A188] Razorbill (*Alca torda*) [A200] Chough (*Pyrrhocorax pyrrhocorax*) [A346]	379.84		
Beara Peninsula SPA (004155)	**Fulmar (*Fulmar glacialis*) [A009]** Chough (*Pyrrhocorax pyrrhocorax*) [A346]	437.86	The Maritime Usage Licence Area is within the range of species **Fulmar (*Fulmar glacialis*)** SCI the Beara Peninsula SPA**.** A possible source pathway-receptor-connection has been identified for this SCI, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season.	**Y (Fulmar *Fulmar glacialis*)** N (Other SCI)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
			There is no source-pathway-receptor connection at Beara Peninsula SPA to the other SCI.	
The Bull and The Cow Rocks SPA (004066)	**Gannet (*Morus bassanus*) [A016]** Storm Petrel (*Hydrobates 72harenta)* [A016] Puffin (*Fratercula arctica*) [A204]	453.54	The Maritime Usage Licence Area is within the range of the pelagic bird species **Gannet (*Morus bassanus*),** SCI at the Bull and Cow Rocks SPA**.** A possible source pathway-receptor-connection has been identified for this SCI, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. There is no source-pathway-receptor connection for the other SCIs at the SPA.	**Y (Gannet (*Morus bassanus*)** N (Other SCIs)
Deenish Island and Scariff Island SPA (004175)	**Fulmar (*Fulmar glacialis*) [A009]** **Manx Shearwater (*Puffinus puffinus*) [A013]** Storm Petrel (*Hydrobates 72harenta*) [A016] Lesser Black-backed Gull (*Larus fuscus*) [A183] Arctic Tern (*Sterna paradisaea*) [A194]	467.32	The Maritime Usage Licence Area is within the range of the pelagic bird species **Fulmar (*Fulmar glacialis*)** and **Manx Shearwater (*Puffinus puffinus*), SCIs** at the Deenish Island and Scariff Island SPA. A possible source pathway-receptor-connection has been identified for these SCIs, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no other source-pathway-receptor connection to the other SCIs at Deenish Island and Scariff Island SPA.	**Y Fulmar (*Fulmar glacialis*) Manx Shearwater (*Puffinus puffinus*),** N (Other SCIs)
Iveragh Peninsula SPA (004154)	**Fulmar (*Fulmarus glacialis*) [A009]**	470.20	The Maritime Usage Licence Area is within the range of the pelagic bird species **Fulmar (*Fulmarus glacialis*)** SCI at the Iveragh Peninsula SPA.	**Y (Fulmar *Fulmarus glacialis*)**

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	Kittiwake (*Rissa tridactyla*) [A188] Guillemot (*Uria aalge*) [A199] Peregrine (*Falco peregrinus*) [A103] Chough (*Pyrrhocorax pyrrhocorax*) [A346]		A possible source-pathway-receptor-connection has been identified for this SCI, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. There is no source-pathway-receptor connection to the other SCIs at the Iveragh Peninsula SPA.	N (Other SCIs)
Skelligs SPA (004007)	Fulmar (*Fulmarus glacialis*) [A009] **Manx Shearwater (*Puffinus puffinus*) [A013]** **Gannet (*Morus bassanus*) [A016]** Kittiwake (*Rissa tridactyla*) [A188] Guillemot (*Uria aalge*) [A199] Puffin (*Fratercula arctica*) [A204] Storm Petrel (*Hydrobates pelagicus*) [A014]	480.19	The Maritime Usage Licence Area is within the range of the pelagic bird species**, Manx Shearwater (*Puffinus puffinus*)** and **Gannet (*Morus Bassanus*)** SCIs at the Skelligs SPA. A possible source-pathway-receptor-connection has been identified for these SCIs, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no source-pathway-receptor connection to the other SCIs at Skelligs SPA.	**Y (Manx Shearwater (*Puffinus puffinus*) Gannet (*Morus Bassanus*)** N (Other SCIs)
Puffin Island SPA (004003)	**Fulmar (*Fulmarus glacialis*) [A009]** **Manx Shearwater (*Puffinus puffinus*) [A013]**	481.71	The Maritime Usage Licence Area is within the range of the pelagic bird species **Fulmar (*Fulmarus glacialis*)** and **Manx Shearwater (*Puffinus puffinus)*** SCIs at Puffin islands.	**Y** **Fulmar (*Fulmarus glacialis*) Manx Shearwater (*Puffinus puffinus)***

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	Storm Petrel (*Hydrobates pelagicus*) [A014] Lesser Black-backed Gull (*Larus fuscus*) [A183] Razorbill (Alca torda) [A200] Puffin (*Fratercula arctica*) [A204]		A possible source pathway-receptor-connection has been identified for this SCI, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. There is no source-pathway-receptor connection at the SPA to the other SCIs.	N (Other SCIs)
Duvillaun Islands SPA (004111)	**Fulmar (*Fulmarus glacialis*) [A009]** Storm Petrel (*Hydrobates pelagicus)* [A014] Barnacle Goose (*Branta leucopsis)* [A045]	501.01	The Maritime Usage Licence Area is with the range of the species **Fulmar (*Fulmarus glacialis*)** SCIs at the Duvillaun Islands SPA. A possible source pathway-receptor-connection has been identified for these SCIs, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no source-pathway-receptor connection to the other SCIs.	**Y (Fulmar (*Fulmarus glacialis*)** N (Other SCIs)
Blasket Islands SPA (004008)	**Fulmar (*Fulmarus glacialis*) [A009]** **Manx Shearwater (*Puffinus puffinus*) [A013]** Kittiwake (*Rissa tridactyla*) [A188] Puffin (*Fratercula arctica*) [A204] Storm Petrel (*Hydrobates pelagicus*) [A014]	507.52	The Maritime Usage Licence Area is with the range of the species **Fulmar (*Fulmarus glacialis*) and Manx Shearwater (*Puffinus puffinus*)** SCIs at the Blasket Islands SPA. A possible source pathway-receptor-connection has been identified for these SCIs, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities.	**Y (Fulmar (*Fulmarus glacialis*) Manx Shearwater (*Puffinus puffinus*)** N (Other SCIs)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	Shag (*Phalacrocorax aristotelis*) [A018] Lesser Black-backed Gull (*Larus fuscus*) [A183] Herring Gull (*Larus argentatus*) [A184] Arctic Tern (*Sterna paradisaea*) [A194] Razorbill (*Alca torda*) [A200] Chough (*Pyrrhocorax pyrrhocorax*) [A346]		There is no source-pathway-receptor connection to the other SCIs at the Blasket Islands SPA.	
Dingle Peninsula SPA (004153)	**Fulmar (*Fulmarus glacialis*) [A009]** Peregrine (*Falco peregrinus*) [A103] Chough (*Pyrrhocorax pyrrhocorax*) [A346]	512.61	The Maritime Usage Licence Area is within the range of the **Fulmar (*Fulmarus glacialis*)** at the Dingle Peninsula SPA. A possible source-pathway-receptor-connection has been identified for the Fulmar, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. There is no source-pathway-receptor connection to the other SCIs at the Dingle Peninsula SPA.	**Y (Fulmar *Fulmarus glacialis*)** N (Other SCIs)
Clare Island SPA (004136)	**Fulmar (*Fulmarus glacialis*) [A009]** Shag (*Phalacrocorax aristotelis*) [A018] Common Gull (*Larus canus*) [A182]	538.76	The Maritime Usage Licence Area is within the range of the pelagic bird species **Fulmar (*Fulmarus glacialis*)** SCI at the SPA. A possible source-pathway-receptor connection has been identified for this SCI, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due	**Y (Fulmar *Fulmarus glacialis*)** N (Other SCIs)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
	Kittiwake (*Rissa tridactyla*) [A188] Guillemot (*Uria aalge*) [A199] Razorbill (*Alca torda*) [A200] Chough (*Pyrrhocorax pyrrhocorax*) [A346]		to noise as a result of investigation activities and disturbance during the breeding season. There is no source-pathway-receptor connection for the other SCIs at the SPA	
High Island, Inishshark and Davillaun SPA (004144)	**Fulmar (*Fulmarus glacialis*) [A009]** Barnacle Goose (*Branta leucopsis*) [A045] Arctic Tern (*Sterna paradisaea*) [A194]	554.98	The Maritime Usage Licence Area is within the range of the pelagic bird species **Fulmar (*Fulmarus glacialis*)** SCI at the SPA. A possible source-pathway-receptor connection has been identified for this SCI, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. There is no source-pathway-receptor connection for the other SCIs at the SPA.	**Y (Fulmar *Fulmarus glacialis*)** N (Other SCIs)
Cruagh Island SPA (004170)	**Manx Shearwater (*Puffinus puffinus)* [A013]** Barnacle Goose (*Branta leucopsis)* [A045]	565.62	The Maritime Usage Licence Area is within the range of the pelagic bird species **Manx shearwater (*Puffinus puffinus*)** SCI at the SPA. A possible source-pathway-receptor connection has been identified for this SCI, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. There is no source-pathway-receptor connection to the other SCI at the Cruagh Island SPA.	**Y** **Manx shearwater (*Puffinus puffinus*)** N (Other SCIs)

Site Name (Site Code)	Qualifying Interest/Special Conservation Interest	Distance from MUL Area (km)	Source-Pathway-Receptor Connections	Considered for screening Y/N
Kerry Head SPA (004189)	**Fulmar (*Fulmarus glacialis*) [A009]** Chough (*Pyrrhocorax pyrrhocorax*) [A346]	566.92	The Maritime Usage Licence Area is within the range of the pelagic bird species **Fulmar (*Fulmarus glacialis*)** SCI at Kerry Head SPA. A possible source-pathway-receptor-connection has been identified for the Fulmar, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. There is no source-pathway-receptor connection to the other SCI at the Kerry Head SPA.	**Y (Fulmar *Fulmarus glacialis*)** N (Other SCI)
Cliffs of Moher SPA (004005)	**Fulmar (*Fulmarus glacialis*) [A009]** Kittiwake (*Rissa tridactyla*) [A188] Puffin (*Fratercula arctica*) [A204] Razorbill (*Alca torda*) [A200] Guillemot (*Uria aalge*) [A199] Chough (*Pyrrhocorax pyrrhocorax*) [A346]	629.29	The Maritime Usage Licence Area is within the range of the pelagic bird species **Fulmar (*Fulmarus glacialis*)** SIC at the Cliffs of Moher SPA. A possible source-pathway-receptor-connection has been identified for these SCIs, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no source-pathway-receptor connection to the other SCIs at the Cliffs of Moher SPA.	**Y (Fulmar *Fulmarus glacialis*)** N (Other SCIs)

Table 4-7 Continuation – Relevant Natura 2000 sites and Source-Pathway-Receptor Connection Identification

			Special Conservation Interest							
Site Code	**Site Name**	**Distance from MUL area (km)**	**Lesser Black Headed Gull *Larus fuscus***	**Puffin *Fratercula arctica***	**Kittiwake**	**Storm Petrel (*Hydrobates pelagicus*)**	**Gannet (*Morus bassanus*)**	**Fulmar (*Fulmar glacialis*)**	**Manx Shear (Puffinus puffinus)**	**Source – Pathway- Receptor**
UK9020328	Irish Sea Front	42.37							**Y**	The Licence Area is within the range of the pelagic bird species that are **bold & shaded**. A possible source pathway-receptor-connection has been identified for these SCIs, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no other source-pathway-receptor connection to the other SCIs that are blank. The Licence Area is within the range of the pelagic bird species that are **bold & shaded**.
UK9013121	Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island	105.91							**Y**	
UK9020291	Copeland Islands	109.30							**Y**	
UK9020326	Morecambe Bay and Duddon Estuary	164.95	**Y**							
UK9003091	Ailsa Craig	172.01	**Y**		**Y**	**Y**			**Y**	
UK9005103	Ribble and Alt Estuaries	177.98	**Y**							
UK9014051	Skomer, Skokholm and the Seas off Pembrokeshire	205.05	**Y**	**Y**		**Y**			**Y**	
UK9005151	Bowland Fells	206.70	**Y**							
UK9014041	Grassholm	207.27					**Y**			
UK9003171	North Colonsay and Western Cliffs	271.20			**Y**					
UK9001341	Rum	369.97							**Y**	
UK9001121	Mingulay and Berneray	375.44						**Y**		
UK9001041	The Shiant Isles	484.44						**Y**		
UK9001031	St Kilda	497.94					**Y**	**Y**	**Y**	
UK9020332	Seas off St Kilda	482.02					**Y**	**Y**		

			Special Conservation Interest							
Site Code	Site Name	Distance from MUL area (km)	Lesser Black Headed Gull *Larus fuscus*	Puffin *Fratercula arctica*	Kittiwake	Storm Petrel (*Hydrobates pelagicus*)	Gannet (*Morus bassanus*)	Fulmar (*Fulmar glacialis*)	Manx Shear (Puffinus puffinus)	Source – Pathway- Receptor
UK9001021	Flannan Isles	532.94						Y		A possible source pathway-receptor-connection has been identified for these SCIs, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no other source-pathway-receptor connection to the other SCIs that are blank.
UK9001241	Handa	571.18						Y		
UK9001231	Cape Wrath	596.29						Y		
UK9001011	North Rona and Sula Sgeir	623.20						Y		
UK9001181	North Caithness Cliffs	666.90						Y		
UK9002141	Hoy	696.32						Y		
UK9002371	Rousay	726.22						Y		
UK9002101	West Westray	736.29						Y		
UK9001182	East Caithness Cliffs	743.17						Y		
UK9002151	Copinsay	743.67						Y		
UK9002431	Calf of Eday	749.53						Y		
UK9020331	Seas off Foula	785.78						Y		
UK9002091	Fair Isle	743.67						Y		
UK9002471	Troup, Pennan and Lion`s Heads	831.09						Y		
UK9002061	Foula	833.20						Y		
UK9002511	Sumburgh Head	853.48						Y		
UK9002491	Buchan Ness to Collieston Coast	869.25						Y		
UK9002081	Noss	888.24						Y		
UK9002011	Hermaness, Saxa Vord and Valla Field	933.31						Y		
UK9002271	Fowlsheugh	934.70						Y		

			Special Conservation Interest							
Site Code	**Site Name**	**Distance from MUL area (km)**	**Lesser Black Headed Gull *Larus fuscus***	**Puffin *Fratercula arctica***	**Kittiwake**	**Storm Petrel (*Hydrobates pelagicus*)**	**Gannet (*Morus bassanus*)**	**Fulmar (*Fulmar glacialis*)**	**Manx Shear (Puffinus puffinus)**	**Source – Pathway- Receptor**
UK9002031	Fetlar	938.06						**Y**		
UK9020316	Outer Firth of Forth and St Andrews Bay Complex	982.79							**Y**	

Continuation of Table above

		Special Conservation Interest					
Site Code	**Site Name**	**Distance from MUL area (km)**	**European Storm Petrel (Hydrobates pelagicus)**	**Gannet (*Morus bassanus*)**	**Fulmar (*Fulmar glacialis*)**	**Manx Shear (Puffinus puffinus)**	**Source – Pathway- Receptor**
FR5212016	Mers Celtiques – Talus du golfe de Gascogne	499.92		**Y**	**Y**	**Y**	The Licence Area is within the range of the pelagic bird species that are **bold & shaded**. A possible source pathway-receptor-connection has been identified for these SCIs, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no other source-pathway-receptor connection to the other SCIs that are blank.
FR5310072	Ouessant-Molène	570.14			**Y**	**Y**	
FR5310073	Baie de Morlaix	581.21				**Y**	
FR2512005	Nord Bretagne DO	588.42		**Y**		**Y**	
FR5310011	Cote de Granit Rose-Sept Iles	577.04			**Y**	**Y**	
FR5310070	Tregor Goëlo	599.96			**y**		
FR5312004	Camaret	609.35			**Y**		
FR5310055	Cap Sizun	628.03			**Y**		
FR5312009	Roches de Penmarc'h	658.44			**Y**	**Y**	
FR5310095	Cap d'Erquy-Cap Fréhel	669.36			**Y**	**Y**	
FR5310057	Archipel de Glenan	677.66				**Y**	
FR2510037	Chausey	692.55				**Y**	
FR5312010	Dunes et côtes de Trévignon	702.37				**Y**	
FR2510047	Baie de Seine occidentale	730.22			**Y**		
FR2510099	Falaise du Bessin Occidental	755.92			**Y**		
FR5310093	Baie de Quiberon	764.06				**Y**	
FR5312011	Iles Houat-Hoedic	774.57				**Y**	
FR5212013	Mor Braz	796.24			**Y**	**Y**	
FR2310045	Littoral seino-marin	800.39			**Y**	**Y**	

			Special Conservation Interest				
Site Code	**Site Name**	**Distance from MUL area (km)**	**European Storm Petrel (Hydrobates pelagicus)**	**Gannet (*Morus bassanus*)**	**Fulmar (*Fulmar glacialis*)**	**Manx Shear (Puffinus puffinus)**	**Source – Pathway- Receptor**
FR5310092	Rivière de Pénerf	804.49				**Y**	The Licence Area is within the range of the pelagic bird species that are **bold & shaded**. A possible source pathway-receptor-connection has been identified for these SCIs, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no other source-pathway-receptor connection to the other SCIs that are blank.
FR2512001	Littoral augeron	808.24				**Y**	
FR5310074	Baie de Vilaine	811.40				**Y**	
FR5212014	Estuaire de la Loire – Baie de Bourgneuf	823.67				**Y**	
FR5212015	Secteur marin de l'île d'Yeu jusqu'au continent	833.90			**Y**	**Y**	
FR5210103	Estuaire de la Loire	823.67				**Y**	
FR5412026	Pertuis charentais – Rochebonne	868.47				**Y**	
FR3110085	Cap Gris-Nez	901.70			**Y**	**Y**	
FR3112006	Bancs des Flandres	946.22			**Y**		
ES0000495	Espacio marino de Punta de Candelaria-Ría de Ortigueira-Estaca de Bares	1084.71				**Y**	
ES0000494	Espacio marino de Cabo Peñas	1092.55				**Y**	
ES0000318	Cabo Busto-Luanco	1104.85				**Y**	
ES0000496	Espacio marino de la Costa de Ferrolterra-Valdoviño	1123.70				**Y**	
ES0000497	Espacio marino de la Costa da Morte	1126.73				**Y**	
ES0000490	Espacio marino de la Ría de Mundaka-Cabo de Ogoño	1155.06				**Y**	
ES0000144	Urdaibaiko itsasadarra / Ría de Urdaibai	1162.47				**Y**	

			Special Conservation Interest				
Site Code	**Site Name**	**Distance from MUL area (km)**	**European Storm Petrel (Hydrobates pelagicus)**	**Gannet (*Morus bassanus*)**	**Fulmar (*Fulmar glacialis*)**	**Manx Shear (Puffinus puffinus)**	**Source – Pathway- Receptor**
FR7212013	Estuaire de la Bidassoa et baie de Fontarabie	1187.60				**Y**	The Licence Area is within the range of the pelagic bird species that are **bold & shaded**. A possible source pathway-receptor-connection has been identified for these SCIs, who could move into the investigation area and be impacted by visual and noise disturbance, disturbance due to noise as a result of investigation activities and disturbance during the breeding season. Diving birds could also be impacted by underwater noise from investigation activities. There is no other source-pathway-receptor connection to the other SCIs that are blank.
ES0000498	ZEPA Banco de Galicia	1232.24				**Y**	
ES0000499	Espacio marino de las Rías Baixas de Galicia	1261.71				**Y**	

4.2.1 SUMMARY OF SPECIAL AREAS OF CONSERVATION, SPECIAL PROTECTION AREAS AND THEIR RELEVANT QUALIFYING INTERESTS CONSIDERED FOR SCREENING

The SACs and their qualifying interests considered for screening are shown in Table 4-8. The potential impacts considered for all the SACs listed include:

- Underwater noise disturbance,
- Injury due to collision with survey vessels,
- Pollution event

Table 4-8 SACs and their designated Qualifying Interests considered relevant for screening

Site name	Qualifying Interest
Irish SACs	
Rockabill to Dalkey Island SAC (003000)	**Reefs** **Harbour Porpoise *(Phocoena phocoena)***
Lambay Island SAC (000204)	**Grey Seal (*Halichoerus grypus*)** **Harbour Seal (*Phoca vitulina*)**
River Boyne And River Blackwater SAC (002299)	**River Lamprey (*Lampetra fluviatilis*)**
Slaney River Valley SAC (000781)	**Harbour Seal (*Phoca vitulina*)**
Saltee Islands SAC (000707)	**Grey Seal (*Halichoerus grypus*)**
Horn Head and Rinclevan SAC (000147)	**Grey Seal (*Halichoerus grypus*)**
Slieve Tooey/ Tormore Island/Loughros Beg Bay SAC (000190)	**Grey Seal (*Halichoerus grypus*)**
Roaringwater Bay And Islands SAC (000101)	**Grey Seal (*Halichoerus grypus*)** **Harbour Porpoise *(Phocoena phocoena)***
Blasket Islands SAC (002172)	**Harbour Porpoise *(Phocoena phocoena)***
UK SACs	
North Anglesey Marine / Gogledd Môn Forol SAC (UK0030398)	**Harbour Porpoise *(Phocoena phocoena)***
Murlough (UK0016612)	**Harbour Seal (*Phoca vitulina*)**
Strangford Lough SAC (UK0016618)	**Harbour Seal (*Phoca vitulina*)**
North Channel SAC (UK0030399)	**Harbour Porpoise *(Phocoena phocoena)***
West Wales Marine SAC (UK0030397)	**Harbour Porpoise *(Phocoena phocoena)***
Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau SAC (UK 0013117)	**Grey Seal (*Halichoerus grypus*)** **Bottlenose dolphin, (*Tursiops truncates)***
The Maidens SAC (UK 0030384)	**Grey Seal (*Halichoerus grypus*)**
Cardigan Bay/ Bae Ceredigion SAC (UK0012712)	**Grey Seal (*Halichoerus grypus*)** **Bottlenose dolphin, (*Tursiops truncates)***
Pembrokeshire Marine SAC (UK0013116)	**Grey Seal (*Halichoerus grypus*)**

Site name	Qualifying Interest
South-East Islay Skerries (UK0030067)	**Harbour Seal (*Phoca vitulina*)**
Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC (UK 0030396)	**Harbour Porpoise (*Phocoena phocoena*)**
Lundy SAC (UK0013114)	**Grey Seal (*Halichoerus grypus)***
Treshnish Isles (UK0030289)	**Grey Seal (*Halichoerus grypus)***
Isles of Scilly Complex SAC (UK0013694)	**Grey Seal (*Halichoerus grypus)***
French SACs	
Mers Celtiques – Talus du golfe de Gascogne FR5212016	**Harbour Porpoise (*Phocoena phocoena*)**
Abers – Côte des legends FR5300017	
Ouessant-Molène FR5310072	
Nord Bretagne DH FR2502022	
Cote de Granit Rose-Sept Iles FR5310011	
Tregor Goëlo FR5310070	
Côtes de Crozon FR5302006	
Chaussée de Sein FR5302007	
Récifs du talus du golfe de Gascogne FR5302016	
Récifs et landes de la Hague FR2500084	
Anse de Vauville FR2502019	
Cap d'Erquy-Cap Fréhel FR5300011	
Baie de Saint-Brieuc – Est FR5300066	
Banc et récifs de Surtainville FR2502018	
Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard FR5300012	
Chausey FR2510037	
Estuaire de la Rance FR5300061	
Baie du Mont Saint Michel FR2510048	

The SPAs and their qualifying interests considered for screening are shown in Table 4-9. The potential impacts considered for all the SPAs listed include:

- Visual and noise disturbance to birds,
- Underwater noise disturbance,

Table 4-9 SPAs and their designated Qualifying Interests for screening

Site Name and Code	Qualifying Interests
Irish SPAs	
North-West Irish Sea cSPA (004236)	**Common Scoter (*Melanitta nigra*)** **Red-throated Diver (*Gavia stellata*)** **Great Northern Diver (*Gavia immer*)** **Fulmar (Fulmarus glacialis)** **Manx Shearwater (*Puffinus puffinus*)** **Shag (*Phalacrocorax aristotelis*)** **Cormorant (*Phalacrocorax carbo*)** **Little Gull (*Larus minutus*)** **Kittiwake (*Rissa tridactyla*)** **Black-headed Gull (Chroicocephalus ridibundus)** **Common Gull (*Larus canus*)** **Lesser Black-backed Gull (*Larus fuscus*)** **Herring Gull (*Larus argentatus*)** **Great Black-backed Gull (*Larus marinus*)** **Little Tern (*Sterna albifrons*)** **Roseate Tern (*Sterna dougallii*)** **Common Tern (*Sterna hirundo*)** **Arctic Tern (*Sterna paradisaea*)** **Puffin (*Fratercula arctica*)** **Razorbill (*Alca torda*)** **Guillemot (*Uria aalge*)**
Seas off Wexford cSPA (004237)	**Guillemot (*Uria aalge*)** **Razorbill (*Alca torda*)** **Lesser Black-backed Gull (*Larus fuscus*)** **Puffin (*Fratercula arctica*)** **Kittiwake (*Rissa tridactyla*)** **Gannet (*Morus bassanus*)** **Fulmar (*Fulmarus glacialis*)** **Manx Shearwater (*Puffinus puffinus*)**
Rockabill SPA (004014)	**Roseate Tern (*Sterna dougallii)*** **Common Tern (*Sterna hirundo),*** **Arctic Tern (*Sterna paradisaea*)**
Lambay Island SPA (004069)	**Fulmar (*Fulmar glacialis*)** **Cormorant (*Phalacrocorax carbo)*** **Shag (*Phalacrocorax aristotelis*)** **Herring Gull (*Larus argentatus*)** **Kittiwake (*Rissa tridactyla*)** **Guillemot (*Uria aalge*)** **Razorbill (*Alca torda*)** **Puffin (*Fratercula arctica*)** **Lesser Black-backed Gull (*Larus fuscus*)**
River Nanny Estuary and Shore SPA (004158)	**Herring Gull (*Larus argentatus*)**

Site Name and Code	Qualifying Interests
Skerries Islands SPA (004122)	**Herring Gull (*Larus argentatus*)** **Cormorant (*Phalacrocorax carbo)*** **Shag (*Phalacrocorax aristotelis*)**
Ireland's Eye SPA (004117)	**Herring Gull (*Larus argentatus*)** **Cormorant (*Phalacrocorax carbo)*** **Kittiwake (*Rissa tridactyla*)** **Guillemot (*Uria aalge*)** **Razorbill (*Alca torda*)**
Howth Head Coast SPA (004113)	**Kittiwake (*Rissa tridactyla*)**
North Bull Island SPA (004003)	**Black-headed Gull (*Chroicocephalus ridibundus*)**
Dundalk Bay SPA (004026)	**Common Gull (*Larus canus*),** **Herring Gull (*Larus argentatus*)**
South Dublin Bay and River Tolka Estuary SPA (004024)	**Arctic Tern (*Sterna paradisaea*)** **Common Tern (*Sterna hirundo*)** **Black-headed Gull (*Chroicocephalus ridibundus*)** **Roseate Tern (*Sterna dougallii)***
Dalkey Islands SPA (004172	**Arctic Tern (*Sterna paradisaea*)**
The Murrough SPA (004186)	**Little Tern (*Sterna albifrons*)** **Black-headed Gull (*Chroicocephalus ridibundus*),** **Herring Gull *(Larus argentatus*)**
Wicklow Head SPA (004127)	**Kittiwake (*Rissa tridactyla*)**
Poulaphouca Reservoir SPA (004063)	**Lesser Black-backed Gull (*Larus fuscus*)**
Wexford Harbour and Slobs SPA (004076)	**Lesser Black-backed Gull (*Larus fuscus*)**
Saltee Islands SPA (004002)	**Fulmar (*Fulmar glacialis*)** **Gannet (*Morus bassanus*)** **Kittiwake (*Rissa tridactyla*)** **Lesser Black-backed Gull (*Larus fuscus*)**
Helvick Head to Ballyquin SPA (004192)	**Kittiwake (*Rissa tridactyla*)**
Horn Head to Fanad Head SPA (004194)	**Fulmar *Fulmarus glacialis*)** **Kittiwake (*Rissa tridactyla*)**
Tory Island SPA (004073)	**Fulmar (*Fulmarus glacialis*)**
West Donegal Coast SPA (004150)	**Fulmar (*Fulmarus glacialis*)**
Beara Peninsula SPA (004155)	**Fulmar (*Fulmarus glacialis*)**
The Bull and The Cow Rocks SPA (004066)	**Gannet (*Morus bassanus*)**
Deenish Island and Scariff Island SPA (004175)	**Fulmar (*Fulmar glacialis*)** **Manx Shearwater (*Puffinus puffinus*),**

Site Name and Code		Qualifying Interests
Iveragh Peninsula SPA (004154)		**Fulmar (*Fulmarus glacialis*)**
Skelligs SPA (004007)		**Manx Shearwater (*Puffinus puffinus*)** **Gannet (*Morus Bassanus*)**
Puffin Island SPA (004003)		**Fulmar (*Fulmarus glacialis*)** **Manx Shearwater (*Puffinus puffinus)***
Blasket Islands SPA (004008)		**Fulmar (*Fulmarus glacialis*)** **Manx Shearwater (*Puffinus puffinus*)**
Duvillaun Islands SPA (004111)		**Fulmar (*Fulmarus glacialis*)**
Dingle Peninsula SPA (004153)		**Fulmar *Fulmarus glacialis*)**
Clare Island SPA (004136)		**Fulmar (*Fulmarus glacialis*)**
High Island, Inishshark and Davillaun SPA (004144)		**Fulmar (*Fulmarus glacialis*)**
Kerry Head SPA (004189)		**Fulmar *Fulmarus glacialis*)**
Cruagh Island SPA (004170)		**Manx shearwater (*Puffinus puffinus*)**
Cliffs of Moher SPA (004005)		**Fulmar *Fulmarus glacialis*)**
UK SPAs		
UK9020328	Irish Sea Front	**Manx Shearwater (*Puffinus puffinus)***
UK9013121	Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island	**Manx Shearwater (*Puffinus puffinus)***
UK9020291	Copeland Islands	**Manx Shearwater (*Puffinus puffinus)***
UK9020326	Morecambe Bay and Duddon Estuary	**Lesser Black-backed Gull (*Larus fuscus*)** **Manx Shearwater (*Puffinus puffinus)***
UK9003091	Ailsa Craig	**Lesser Black-backed Gull (*Larus fuscus*)** **Storm Petrel (Hydrobates 88harenta)**
UK9005103	Ribble and Alt Estuaries	**Lesser Black-backed Gull (*Larus fuscus*)**
UK9014051	Skomer, Skokholm and the Seas off Pembrokeshire	**Lesser Black-backed Gull (*Larus fuscus*)** **Puffin (*Fratercula arctica*)** **Storm Petrel (*Hydrobates pelagicus*)** **Manx Shearwater (*Puffinus puffinus)***
UK9014041	Grassholm	**Gannet (*Morus Bassanus*)**
UK9005151	Bowland Fells	**Lesser Black-backed Gull (*Larus fuscus*)**
UK9003171	North Colonsay and Western Cliffs	**Kittiwake (*Rissa tridactyla*)**
UK9001341	Rum	**Manx Shearwater (*Puffinus puffinus)***
UK9001121	Mingulay and Berneray	**Fulmar (*Fulmar glacialis)***
UK9001041	The Shiant Isles	**Fulmar (*Fulmar glacialis)***
UK9001031	St Kilda	**Fulmar *Fulmarus glacialis*)** **Manx Shearwater (*Puffinus puffinus*)** **Gannet (*Morus Bassanus*)**
UK9020332	Seas off St Kilda	**Fulmar *Fulmarus glacialis*)** **Gannet (*Morus Bassanus*)**
UK9001021	Flannan Isles	**Fulmar *Fulmarus glacialis*)**
UK9001241	Handa	
UK9001231	Cape Wrath	
UK9001011	North Rona and Sula Sgeir	
UK9001181	North Caithness Cliffs	
UK9002141	Hoy	

Site Name and Code		Qualifying Interests
UK9002371	Rousay	
UK9002101	West Westray	
UK9001182	East Caithness Cliffs	
UK9002151	Copinsay	
UK9002431	Calf of Eday	
UK9020331	Seas off Foula	
UK9002091	Fair Isle	
UK9002471	Troup, Pennan and Lion`s Heads	
UK9002061	Foula	
UK9002511	Sumburgh Head	
UK9002491	Buchan Ness to Collieston Coast	
UK9002081	Noss	
UK9002011	Hermaness, Saxa Vord and Valla Field	
UK9002271	Fowlsheugh	
UK9002031	Fetlar	
UK9020316	Outer Firth of Forth and St Andrews Bay Complex	**Manx Shearwater (*Puffinus puffinus*)**
French & Spanish SPAs		
FR5212016	Mers Celtiques – Talus du golfe de Gascogne	**Gannet (*Morus bassanus*)** **Fulmar (*Fulmar glacialis*)** **Manx Shearwater (*Puffinus puffinus*)**
FR5310072	Ouessant-Molène	**Fulmar (*Fulmar glacialis*)** **Manx Shearwater (*Puffinus puffinus*)**
FR5310073	Baie de Morlaix	**Manx Shearwater (*Puffinus puffinus*)**
FR2512005	Nord Bretagne DO	**Gannet (*Morus bassanus*)** **Manx Shearwater (*Puffinus puffinus*)**
FR5310011	Cote de Granit Rose-Sept Iles	**Fulmar (*Fulmar glacialis*)** **Manx Shearwater (*Puffinus puffinus*)**
FR5310070	Tregor Goëlo	**Fulmar (*Fulmar glacialis*)**
FR5312004	Camaret	**Fulmar (*Fulmar glacialis*)**
FR5310055	Cap Sizun	**Fulmar (*Fulmar glacialis*)**
FR5312009	Roches de Penmarc'h	**Fulmar (*Fulmar glacialis*)** **Manx Shearwater (*Puffinus puffinus*)**
FR5310095	Cap d'Erquy-Cap Fréhel	**Fulmar (*Fulmar glacialis*)** **Manx Shearwater (*Puffinus puffinus*)**
FR5310057	Archipel de Glenan	**Manx Shearwater (*Puffinus puffinus*)**
FR2510037	Chausey	**Manx Shearwater (*Puffinus puffinus*)**
FR5312010	Dunes et côtes de Trévignon	**Manx Shearwater (*Puffinus puffinus*)**
FR2510047	Baie de Seine occidentale	**Fulmar (*Fulmar glacialis*)**
FR2510099	Falaise du Bessin Occidental	
FR5310093	Baie de Quiberon	**Manx Shearwater (*Puffinus puffinus*)**
FR5312011	Iles Houat-Hoedic	**Manx Shearwater (*Puffinus puffinus*)**
FR5212013	Mor Braz	**Fulmar (*Fulmar glacialis*)** **Manx Shearwater (*Puffinus puffinus*)**
FR2310045	Littoral seino-marin	**Fulmar (*Fulmar glacialis*)** **Manx Shearwater (*Puffinus puffinus*)**

Site Name and Code		Qualifying Interests
FR5310092	Rivière de Pénerf	**Manx Shearwater (*Puffinus puffinus)***
FR2512001	Littoral augeron	
FR5310074	Baie de Vilaine	
FR5212014	Estuaire de la Loire – Baie de Bourgneuf	
FR5212015	Secteur marin de l'île d'Yeu jusqu'au continent	**Fulmar (*Fulmar glacialis)*** **Manx Shearwater (*Puffinus puffinus)***
FR5210103	Estuaire de la Loire	**Manx Shearwater (*Puffinus puffinus)***
FR5412026	Pertuis 90harentais – Rochebonne	**Manx Shearwater (*Puffinus puffinus)***
FR3110085	Cap Gris-Nez	**Fulmar (*Fulmar glacialis)*** **Manx Shearwater (*Puffinus puffinus)***
FR3112006	Bancs des Flandres	**Fulmar (*Fulmar glacialis)***
ES0000495	Espacio marino de Punta de Candelaria-Ría de Ortigueira-Estaca de Bares	**Manx Shearwater (*Puffinus puffinus)***
ES0000494	Espacio marino de Cabo Peñas	
ES0000318	Cabo Busto-Luanco	
ES0000496	Espacio marino de la Costa de Ferrolterra-Valdoviño	
ES0000497	Espacio marino de la Costa da Morte	
ES0000490	Espacio marino de la Ría de Mundaka-Cabo de Ogoño	
ES0000144	Urdaibaiko itsasadarra / Ría de Urdaibai	**Manx Shearwater (*Puffinus puffinus)***
FR7212013	Estuaire de la Bidassoa et baie de Fontarabie	
ES0000498	ZEPA Banco de Galicia	
ES0000499	Espacio marino de las Rías Baixas de Galicia	

5 SCREENING FOR LIKELY SIGNIFICANT EFFECTS

The physical presence of survey vessels and the site investigation activities may affect QIs and SCIs of Natura 2000 sites in the zone of influence of the proposed site investigation activities.

5.1 PHYSICAL DISTURBANCE TO MARINE BENTHIC COMMUNITIES AND HABITAT LOSS

There is no overlap between the proposed Maritime Usage Licence area and any SACs designated for the protection of the Qualifying Interest Annex I Habitats. However, Rockabill to Dalkey Island SAC (003000) is adjacent and there is a potential source pathway receptor connection and risk of transport of suspended sediment to the reef from increased sedimentation caused by the site investigation activities. The spatial footprint of the site investigation SI is small and temporary in duration. In addition, these site investigation activities are conducted in a dynamic area (within the Irish Sea, tidal

flows are known to interact with and mobilise unconsolidated seabed sediments) so it is considered unlikely that physical disturbance to the reef will be above natural levels experienced.

All site investigation activities are located outside of Natura 2000 sites designated for Annex I habitat QIs and no source-pathway-receptor connection has been identified, therefore there will be **no effect** on designated Annex I habitat QIs within Natura 2000 sites.

The North-west Irish Sea candidate SPA (cSPA) overlaps with the Licence Area. The cSPA comprises of estuaries and bays, opening along coastal stretches of intertidal and subtidal habitats (NPWS, 2023). The cSPA provides feeding and roosting habitats for waterbirds during winter periods. These areas, and the pelagic marine areas further offshore, provide supporting habitats for the seabird colonies breeding on islands and coastal headlands (NPWS, 2023).

There is a possible indirect impact from the proposed works on the supporting habitats of the proposed bird features of the cSPA through disturbance to marine benthic communities and habitat loss impacting the ability of foraging grounds to provide food for foraging birds.

As significant effects due to the potential indirect impacts of physical disturbance cannot be ruled out, this will be considered further in this assessment.

5.2 Disturbance from Vibration and Underwater Noise Associated with Surveys

The physical presence of the survey vessel and the site investigation activities may introduce vibration and noise to the underwater environment which may impact marine mammals, fish and birds designated as QIs and SCIs in Natura 2000 sites in the zone of influence of the proposed site investigation activities.

5.2.1 Marine Mammals

Both cetaceans and pinnipeds have evolved to use sound as an important aid in navigation, communication, and hunting (Richardson *et al*., 1995). It is widely accepted that the main environmental concern relating to marine mammals is the potential effects of anthropogenic underwater noise (see Nowacek *et al*., 2007 for review). Exposure to noise can induce a range of effects on marine mammals: physical effects may include a temporary reduction in hearing sensitivity (Temporary Threshold Shift (TTS)) which is reversible over time; or following intense noise exposure, Permanent Threshold Shift (PTS). Other effects include masking of biologically important noises by anthropogenic noise (perceptual effects); behavioural changes such as displacement from feeding, resting, or breeding grounds; and stress (Southall *et al*., 2007, Southall *et al*., 2019; DAHG, 2014).

Acoustic instruments and equipment used in marine site investigations produce sound at frequencies within the hearing range of marine mammals (Nowacek *et al*., 2007). In order to evaluate the potential of the proposed survey equipment to cause harm to marine mammals, an assessment has been conducted using the approach described in Southall *et al*. (2007).

Southall *et al*. (2007) divide marine mammals into groups based on their functional hearing, namely low-frequency cetaceans, mid-frequency cetaceans, high-frequency cetaceans, and pinnipeds in water and pinnipeds in air. For each of these groups sound pressure levels that would result in injury (TTS or PTS) are proposed for individuals exposed to single, multiple and non-pulsed sources.

Note updated noise criteria are proposed by the US National Marine Fisheries Service (NMFS, 2016; NMFS, 2018) and Southall *et al*. (2019) criteria, with hearing groups more differentiated than those set out in Southall *et al*. (2007). Specifically, the distinction between High Frequency and Very High Frequency cetacean groups (as opposed to between mid- and high- frequency) reflects the regions of best hearing sensitivities within these groups, often including frequencies approaching or exceeding 100 kHz and a potential distinction between very low frequency (VLF) and LF cetacean among the mysticetes and a potential segregation of mid frequency (MF) and HF cetacean in addition to the distinction of HF and VHF cetaceans are suggested.

In effect, this results in a re-labelling of Mid-Frequency (MF) cetaceans and High-Frequency (HF) cetaceans to High-Frequency cetaceans and Very High-Frequency cetaceans respectively. The relevant PTS values within the re-labelled groups are identical between NOAA (2018) and Southall et al. (2019) with no substantive change compared to Southall *et al*. (2007).

For this reason, and as the current guidance from DAHG (2014) refers to Southall *et al*. (2007), the criteria from Southall *et al*. (2007) have been used in this report. This is summarised in Table 5-1.

Table 5-1 Underwater Auditory Band Width for Marine Mammal Species (Southall et al., 2007 and Southall et al., 2019)

Frequency	Marine Mammal/Species	Estimated Auditory Band Width (kHz) Southall et al. (2007)	Estimated Auditory Band Width (kHz) Southall et al. (2019)
Low Frequency Cetaceans	Baleen whales (Minke whale, Humpback whale)	0.007 – 22	0.007 – 35
Mid Frequency Cetaceans/* **High Frequency cetaceans**	Most toothed whales and dolphins (including Common & Risso's Dolphin)	0.15 - 160	0.15 – 160
High Frequency Cetaceans/***very high frequency**	Certain toothed whales and porpoises (including Harbour porpoise)	0.2 - 180	0.275 – 160
Low Frequency Pinnipeds in water	Grey seal & harbour seal	0.075 - 75	0.050 – 86

*Southall *et al*. (2019) category

Noise characteristics of the proposed site investigation activities are detailed in Table 5-2 below.

Table 5-2 Noise sources during site investigation activities

Survey technique	Operating frequency (kHz)	Estimated sound level at 1m over frequency band Sound pressure level	Typical length of towed equipment	Source/ Reference	Indicative Equipment Specification
Side-scan sonar (SSS)	300-500 (low) 500-900 (high)	220-230 dB re 1µPa	<300 m from vessel	EdgeTech (2021) and IWDG (2007)	EdgeTech 4205
Multi-beam Echosounder (MBES)	211	198 re 1µPa @1m	Hull- or Pole-mounted	Kongsberg (2022)	Kongsberg EM2040
Single Beam Echosounder	200	221.6 Sound Pressure Level	Hull- or Pole-mounted	Kongsberg (2022)	200 9G
Sub Bottom Profiler (Parametric Pinger)	85 - 115	232 Source Level rms (dB re 1 µPa @ 1m)	Pole-mounted, or Equipment mounted	CSA (2020)	Innomar "Standard" Sub-Bottom Profiler
Sub Bottom Profiler (Sparker)	0.4-5 kHz	203 dB	Towed	CSA (2020)	Geomarine, Geo-source or similar dual 400 tip sparker (<800J)
Sub Bottom Profiler (Boomer)	0.1-5	205 (SLrms (dB re 1 µPa m) 211 $SL_{0\text{-}pk}$ (dB re 1 µPa m)	Towed	CSA (2020)	AA, triple plate S-Boom (700-1,000 J)[3]
Sub Bottom Imager (SBI)	4.5 – 12.5 kHz	190dB re 1uPa @1m	Pole mounted from a vessel or ROV mounted	Kraken Robotics	Kraken Robotics Sub Bottom Imager
USBL (ultra-short baseline)	18-32 kHz	192 dB re 1µPa @ 1m	Vessel mounted transponder – receiver on equipment	Applied Acoustics (2020)	Applied Acoustics EasyTrak Nexus Model EZT-2691
Acoustic Corer	low frequency 1.5 to 6 kHz and high frequency 4.5 to 12 kHz chirp	Peak SL 195dB & 190dB re 1uPa @1m dB	Seabed	Kraken Robotics	Pangeo subsea/Kraken Robotics
Vessel noise	0.05 – 0.3	160 – 175 dB re 1µPa @ 1m	-	Southall et al., 2007	-
Geotechnical Drilling (Rotary)	(0.041 – 0.045kHz)[1] (0.028 – 0.120kHz)[2]	(158.9)[1] (118-145)[2]	Seabed	[1](Long-Fei Huang et al, 2023) [2](SubAcousTech, 2021)	-

Survey technique	Operating frequency (kHz)	Estimated sound level at 1m over frequency band Sound pressure level	Typical length of towed equipment	Source/ Reference	Indicative Equipment Specification
Seismic CPTS	0.001-0.28kHZz	Sound pressure of approx 145dB re1µPa @1m	Seabed		

Comparing the data on species auditory band with (Table 5-1) and the noise characteristics of the surveys (Table 5-2) it is deemed that the following will be audible to marine mammals (including otters):

- Sub Bottom Profiler (Sparker)
- Sub Bottom Profiler (Parametric Pinger)
- Sub Bottom Profiler – Boomer (SBP)
- Ultra-short baseline (USBL)
- Sub Bottom Imager (SBI)
- Acoustic Corer
- Vessel noise
- Geotechnical Drilling (including seismic CPTs)

The surveys which emit noise within the audible band width for marine mammals are presented in Table 5-3.

Table 5-3 Underwater Auditory Band Width for Marine Mammal Species (Southall et al., 2007)

Frequency	Marine Mammal/Species	Estimated Auditory Band Width (kHz)	Audible Survey
Low Frequency Cetaceans	Baleen whales (Minke whale, Humpback whale)	0.007 - 22	SBP, USBL, SBI, Acoustic corer, Vessel noise, Geotechnical Drilling (including seismic CPTs)
Mid Frequency Cetaceans	Most toothed whales and dolphins (including Common & Risso's Dolphin)	0.15 - 160	SBP, USBL, SBI, Acoustic corer, Vessel noise, Geotechnical Drilling (including seismic CPTs)
High Frequency Cetaceans	Certain toothed whales and porpoises (including Harbour porpoise)	0.2 - 180	SBP, USBL, SBI, Acoustic corer, Vessel noise Geotechnical Drilling (including seismic CPTs)
Low Frequency Pinnipeds in water	Grey seal & harbour seal	0.075 - 75	SBP, USBL, SBI, Acoustic corer, Vessel noise, Geotechnical Drilling (including seismic CPTs)

Frequency	Marine Mammal/Species	Estimated Auditory Band Width (kHz)	Audible Survey
Low Frequency	Sea otter	0.125-38	SBP, USBL, SBI, Acoustic corer, Vessel noise, Geotechnical Drilling (including seismic CPTs)

For each of the marine mammal groups mentioned above from Southall *et al*. (2007), the sound pressure levels that would result in injury (PTS or TTS) that were proposed for individuals exposed to single, multiple and non-pulsed sources are provided in Table 5-4.

Note sea otter have not been included in the SPL injury criteria proposed by Southall *et al*. (2007) however as their Estimated Auditory Band Width is within that of the low frequency pinnipeds in water, the pinnipeds (in water) criteria have been used as a proxy for sea otter.

Table 5-4 Sound Pressure Level (SPL) injury criteria proposed by Southall et al. (2007), for individual marine mammals exposed to discrete noise events

Marine Mammal group	Injury Criteria	
	TTS	PTS
Low-Frequency Cetaceans (Baleen whales)	224dB re: 1µPa (peak)	230dB re: 1µPa (peak)
Mid-Frequency Cetaceans (including Bottlenose dolphins)	224dB re: 1µPa (peak)	230dB re: 1µPa (peak)
High Frequency Cetaceans (including harbour porpoise)	224dB re: 1µPa (peak)	230dB re: 1µPa (peak)
Pinnipeds and sea otter (in water)	212dB re: 1µPa (peak)	218 dB re: 1µPa (peak)

- Depending on what frequency is used, the Sub Bottom Profiler (Parametric Pinger) may emit noise in an audible frequency for marine mammals which can reach a Sound Pressure Level which could cause TTS and PTS injury according to the SPL injury criteria proposed by Southall *et al.* 2007.
- Sparker and Boomer SBP systems may emit noise in an audible frequency for marine mammals which could cause TTS injury to seals and otters according to the SPL injury criteria proposed by Southall *et al.* 2007.
- None of the other proposed site investigation activities emit noise in an audible frequency for marine mammals which can reach a Sound Pressure Level which could cause injury to marine mammals,

As **significant effects** on designated marine mammal species features of Natura 2000 sites due to underwater noise emitted by some of the proposed site investigation activities are therefore determined to be **likely**, this will be considered further in this assessment.

5.2.2 FISH

Fish use either particle motion or sound pressure for detecting sound; while all fish detect and use particle motion hearing it is the presence of ancillary hearing structures that determines their hearing sensitivity. Only a subset of fish can detect sound pressure (Putland et al., 2018).

In general, fish species without a swim bladder (i.e., lamprey, sharks, some flatfish and tunas), or those that have small or reduced swim bladders (i.e. typically, benthic species, including some flatfish), tend to have relatively poor auditory sensitivity and generally cannot hear sounds at frequencies above 1 kHz. Hearing for these fish involves particle motion, not sound pressure (NOAA, 2016).

Fish species with anatomical specializations between the swim bladder and the ear generally have lower thresholds and wider hearing bandwidths than species without such specializations and may have greater ability to detect, and therefore respond to, sound pressure. This is the case of fish belonging to clupeiform species (e.g., shad, herring, sardines, and alewives). Clupeids of the shad family (Alosinae) in particular, have shown sensitivity to a range of frequencies that can extend to >100 kHz. (Mann *et al*., 2001). Teague & Clough (2011) recorded positive significant reactions in juvenile twaite shad to sound frequencies of between 30 and 60 kHz with a peak at 45kHz. Behavioural studies of the responses of American shad to ultrasound (Mann *et al.*, 2001; Popper *et al*., 2004) demonstrate that they show a graded series of responses depending on the sound level and, to a lesser degree, on the frequency of the stimulus. Low-intensity stimuli elicit a non-directional movement of the fish, whereas somewhat higher sound levels elicit a directional movement away from the sound source and still higher-level sounds produce a ‘‘wild’’ chaotic movement of the fish.

Fish that possess swim bladders but with no special adaptations typically do not show a comparable degree of hearing sensitivity to shad. For example, Atlantic Salmon (*Salmo salar*) have poor hearing sensitivity and are only capable of detecting low frequency tones (below 380 Hz) and particle motion rather than sound pressure (NOAA, 2016).

Mickle et al (2009) tested auditory responses in the sea lamprey, which do not possess swim bladders, and found sea lampreys can detect noise frequencies of 50–300 Hz with equal sensitivity but did not detect sounds above 300Hz.

While shipping noise is likely audible to lamprey, lamprey are not sensitive to sound pressure.

Temporary threshold shift (TTS) is a non-injurious temporary reduction in hearing sensitivity caused by exposure to intense sound. TTS has been documented in some fish, though only after multiple exposures to intense sounds (e.g. 190 dB re 1 µPa rms) or as a result of long-term exposure (e.g. tens of minutes or hours) to less intense sounds (Popper & Hawkins, 2019). Popper & Hawkins (2019) suggest that, as sensory hair cells are constantly added in fish and replaced when damaged, both hearing specialists and generalists were able to recover from varying levels of substantial TTS in less than 18 hours after exposure. Permanent hearing loss has not been documented in fish (NOAA, 2016).

Popper & Hawkins (2019) suggest that exposure to very high intensity low and mid-frequency sonars and seismic airguns does not result in mortality in fish. They found that fish experienced damage to body tissues (i.e. barotrauma) after receiving high intensity impulsive sounds.

As the site investigation activities will not produce high intensity impulsive noise only fish species that use sound pressure to hear may be impacted by the site investigation activities. Twaite shad may therefore be impacted by some of the geophysical site investigation activities and shipping noise. Given that twaite, allis and the American shad are in the same genus (Alosa) and are morphometrically similar, allis shad may be similarly sensitive to underwater noise.

Allis shad fish species that are features of Natura 2000 sites are outside the zone of influence and significant effects on these species are therefore considered **unlikely** and will not be considered further in this assessment.

Significant effects on other designated fish species features of Natura 2000 sites, including **sea lamprey and river lamprey**, due to underwater noise emitted by site investigation activities are also considered **unlikely**.

5.2.3 BIRDS

Diving seabirds have an underwater hearing range of approximately 500Hz to 4kHz (Crowell 2014, Crowell et al. 2015, Hansen et al. 2017). McCauley (1994) inferred from vocalisation ranges that the threshold of perception for low frequency seismic noise in some species (e.g. penguins, considered as a proxy for auk species) could be high, hence individuals could be adversely affected in close proximity to a low frequency seismic noise source.

The diving bird species listed in Table 5-5 are known to engage in pursuit diving or benthic feeding in marine, coastal and estuarine waters at least during part of the year and as such may be vulnerable to underwater noise.

Table 5-5 Migratory and/or Annex I diving bird species considered potentially vulnerable to underwater noise

Migratory and/or Annex I diving bird species considered potentially vulnerable to underwater noise effects		
Divers and grebes	**Seabirds**	**Diving ducks**
Great northern diver (*Gavia immer)*	Manx shearwater *Puffinus puffinus*	Pochard *Aythya ferina*
Red-throated diver *(Gavia stellata)*	Gannet *Morus bassanus*	Tufted duck *Aythya fuligula*
Black-throated diver (*Gavia arctica)*	Cormorant *Phalacrocorax carbo carbo*	Scaup *Aythya marila*
Little grebe (*Tachybaptus ruficollis)*	Shag *Phalacrocorax aristotelis*	Eider *Somateria mollissima*
Great crested grebe (*Podiceps cristatus)*	Guillemot *Uria aalge*	Long-tailed duck *Clangula hyemalis*
Slavonian grebe (*Podiceps auritus)*	Razorbill *Alca torda*	Common scoter *Melanitta nigra*
	Puffin *Fratercula arctica*	Velvet scoter *Melanitta fusca*

Migratory and/or Annex I diving bird species considered potentially vulnerable to underwater noise effects		
Divers and grebes	**Seabirds**	**Diving ducks**
		Goldeneye *Bucephala clangula*
		Red-breasted merganser *Mergus serrator*
		Goosander *Mergus merganser*

Very high amplitude low frequency underwater noise may result in acute trauma to diving seabirds, with several studies reporting mortality of diving birds in close proximity (i.e. tens of metres) to underwater explosions (Yelverton et al. 1973, Cooper 1982, Stemp 1985, Danil & St Leger 2011). The noise caused explosions, which is impulsive in nature, would be many magnitudes greater than that produced by the activities proposed under this application.

Direct effects from underwater seismic surveys on diving birds could potentially occur through physical damage, given exposure to sufficiently high amplitudes, or through behavioural disturbance. Deeper-diving species which spend longer periods of time underwater (e.g. auks) may be most at risk of exposure, but all species which routinely submerge in pursuit of prey and benthic feeding opportunities in marine and estuarine habitats may be exposed to anthropogenic noise (BEIS, 2019).

While changes in penguin abundance and distribution concurrent with seismic survey activity has been recorded by Pichegru et al. (2017), no significant difference was observed in abundance of thick-billed murre (Brünnich's guillemot), or fulmar or kittiwake in the Hudson Strait during shooting and non-shooting periods of seismic surveys undertaken over a three-year campaign (Stemp 1985). Mortality of seabirds has not been reported during extensive seismic operations in the North Sea and elsewhere.

While seabird responses to approaching vessels are highly variable (e.g. Fleissbach et al. 2019), flushing disturbance would be expected to displace most diving seabirds from close proximity to the survey vessel and any towed equipment, thereby limiting their exposure to the highest sound pressures generated. Similarly, any behavioural disturbance of seabirds due to the survey activities is most likely to be temporary displacement associated with the physical presence of the vessel, comparable to that experienced by routine shipping traffic as opposed to injury due to underwater noise.

Considering the lack of reported effects of underwater noise levels generated by site investigations for offshore wind data gathering purposes on diving birds, the comparatively lower amplitude source characteristics of the potential sources in the proposed site investigation activities, and the very small spatial footprint and short duration of the planned site investigation activities, significant effects on all designated bird species features of Natura 2000 sites due to underwater noise emitted by the proposed site investigation activities are considered **unlikely**.

5.3 Injury Due to Collision (Survey Vessels/Sampling Equipment)

The key factors contributing to collision between marine mammals and vessels are the presence of both in the same area and vessel speed (see Schoeman et al., 2020 for review). Injuries to marine mammals from vessel strikes are species-dependent but generally are more severe at higher impact speeds (Wang et al., 2007). Vessels involved in these surveys are likely to be either stationary or travelling slowly (c. 5 knots) thus allowing any animal in the area time to avoid collision.

Cetacean and pinnipeds in the area are exposed to vessels of all sizes on a regular basis due to other activities in the area including fishing and shipping. As a result, they are likely to maintain a distance from all survey vessels for the short time period of site investigation activities before returning to the area once site investigation activities have finished. Therefore, the collision risk posed by the site investigation activities is likely to be significantly lower than that posed by commercial shipping activity. A slow-moving survey vessel in the area will not pose a collision risk to seabirds foraging the area who are accustomed to vessels traversing the area.

Significant effects on designated marine mammal species features of Natura 2000 sites due to collision with vessels undertaking the proposed site investigation activities are considered highly **unlikely**.

5.4 Physical and Airborne Noise Disturbance to Birds

5.4.1 Sea Birds

The following seabird species which are sensitive to physical disturbance were identified as relevant considering the location of their breeding colonies and foraging distances of these species:

- Manx shearwater (*Puffinus puffinus)*
- Fulmar (*Fulmarus glacialis)*
- Gannet (*Morus bassanus)*
- European storm petrel (*Hydrobates pelagicus*)
- Kittiwake (*Rissa tridactyla)*
- Puffin (*Fratercula arctica)*
- Lesser black-backed gull (*Larus fuscus)*
- Razorbill (*Alca torda)*
- Storm petrel (*Hydrobates pelagicus)*
- Common Gull (*Larus canus)*
- Cormorant (*Phalacrocorax carbo)*
- Shag (*Phalacrocorax aristotelis)*
- Arctic Tern (*Sterna paradisaea)*
- Roseate Tern (*Sterna dougallii)*
- Black-headed Gull (*Chroicocephalus ridibundus)*
- Herring Gull (*Larus argentatus)*
- Guillemot (*Uria aalge)*
- Common Tern (*Sterna hirundo)*

Of these, northern gannet, fulmar, common guillemot, kittiwake, Manx shearwater and the gulls have a low to moderate sensitivity to disturbance by shipping traffic (Garthe & Hüppop, 2004; MMO, 2008, Fleissbach et al., 2019).

While rafting birds which are Qualifying Interests of SPAs within foraging range of the Application Area may move in response to vessels in transit, such effects are of low magnitude and short duration, and will represent negligible additional disturbance over other vessel movements, including existing fishing, cargo and tanker traffic.

The physical presence of the survey vessels may result in temporary disturbance to individual birds present in the immediate vicinity of the Screening Area. There is also the potential for disturbance to roosting birds due to the proposed site investigation activities, including intertidal benthic survey and trial pit works.

Birds may be disturbed by the activities during the breeding season while nesting. Disturbance causing birds to temporarily take flight may leave chicks vulnerable to predation by predators, thereby affecting the successful fledging of chicks and reducing the reproduction rate. Breeding birds in the area are habituated to vessel movements in and out of Skerries Harbour, Balbriggan Harbour, Drogheda Port, Clogherhead Harbour, Dundalk Port and Warrenpoint Port which are busy shipping areas subject to multiple vessel movements every day, and other local harbours and the coastal SPAs in the area afford breeding birds physical separation from marine activities.

As there is existing shipping activity in the region, birds are already accustomed to physical disturbance from marine traffic, therefore the introduction of a small number of slow-moving additional vessels is not likely to cause significant disturbance.

The North-west Irish Sea cSPA is an important resource for marine birds foraging offshore and roosting in intertidal areas of the cSPA. Likely significant effects cannot be ruled out for indirect impacts of physical disturbance on foraging grounds for foraging seabirds or roosting grounds for roosting seabirds designated within the North-west Irish Sea cSPA. As **significant effects** on designated bird species features of this Natura 2000 site due to the proposed site investigation activities are therefore determined to be **likely**, this will be considered further in this assessment.

Significant effects on designated bird species features of all other Natura 2000 sites due to physical and airborne noise disturbance caused by the proposed site investigation activities are considered **unlikely**.

The relevant SPAs are listed in Appendix II, including their sensitivity to physical disturbance and/or underwater noise, as a point of reference.

5.5 POLLUTION EVENT

Benthic habitats, marine mammals, fish and seabirds are considered vulnerable to oil pollution, in particular diving birds given the time they spend resting on the water surface, and diving through it in search of food.

The International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 (MARPOL 73/78[5]), is an international marine environmental convention which aims to prevent both operational and accidental discharge into the marine from sea going vessels. Ireland ratified the various elements of the MARPOL Convention through the Sea Pollution Act 1991, the Sea Pollution (Amendment) Act 1999 and the Sea Pollution (Miscellaneous Provisions) Act 2006. MARPOL 73/78 was given further legal effect through Statutory Instruments introduced under these Acts. The Acts place a legal obligation upon operators of vessels to implement measures to prevent both operational and accidental discharges from ships of substances, which may damage the marine environment as well as human health.

While the site investigation activities will result in a temporary increase in vessels using the area which increases the risk of accidents and resultant fuel and/or oil spills, an incidence of pollution whether from an accidental occurrence or operational activities is not considered likely considering the legal obligations to comply with MARPOL 73/78 with the increased risk of a pollution event occurring due to these activities considered minimal and not to be over and above existing background risk.

All vessels used during the survey campaign shall, as required by law, be MARPOL Compliant and fully certified by the Maritime Safety Office. This is standard practice for all survey activities irrespective of the survey operator and as it is required by law is built into the survey design.

Therefore, it is considered **unlikely** that there would be any occurrence of a pollution event either accidental or otherwise that could directly or indirectly cause a significant effect to a Natura 2000 site. As such, pollution events are not considered further as a potential impact in this report.

5.6 IN-COMBINATION SCREENING FOR CUMULATIVE EFFECTS

In-combination screening for cumulative effects has been undertaken following the approach outlined in the European Commission Notice Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive (EC, 2021).

5.6.1 DEFINING CUMULATIVE EFFECTS SPATIAL SCOPE (CESS)

The boundary for examination of cumulative effects has been defined considering the types of impact which relate to the activities set out in the AIMU document which accompanies this MUL application and includes remote (off-site) locations as set out in (EC, 2021).

Impacts of noise associated with the planned survey activities are considered to have the widest spatial reach, with Harbour porpoise the designated Natura 2000 site feature which is most sensitive to noise disturbance (JNCC, 2020).

[5] Note MARPOL stands for maritime pollution while 73/78 stands for 1973 and 1978

Proposed noise producing activities are provided below in Table 5-6.

Table 5-6 Noise sources during site investigation activities

Survey technique	Operating frequency (kHz)	Estimated sound level at 1m over frequency band Sound pressure level	Typical length of towed equipment	Source/ Reference	Indicative Equipment Specification
Side-scan sonar (SSS)	300-500 (low) 500-900 (high)	220-230 dB re 1µPa	<300 m from vessel	EdgeTech (2021) and IWDG (2007)	EdgeTech 4205
Multi-beam Echosounder (MBES)	211	198 re 1µPa @1m	Hull- or Pole-mounted	Kongsberg (2022)	Kongsberg EM2040
Single Beam Echosounder	200	221.6 Sound Pressure Level	Hull- or Pole-mounted	Kongsberg (2022)	200 9G
Sub Bottom Profiler (Parametric Pinger)	85 - 115	232 Source Level rms (dB re 1 µPa @ 1m)	Pole-mounted, or Equipment mounted	CSA (2020)	Innomar "Standard" Sub-Bottom Profiler
Sub Bottom Profiler (Sparker)	0.4-5 kHz	203 dB	Towed	CSA (2020)	Geomarine, Geo-source or similar dual 400 tip sparker (<800J)
Sub Bottom Profiler (Boomer)	0.1-5	205 (SLrms (dB re 1 µPa m) 211 $SL_{0\text{-}pk}$ (dB re 1 µPa m)	Towed	CSA (2020)	AA, triple plate S-Boom (700-1,000 J)[3]
Sub Bottom Imager (SBI)	4.5 – 12.5 kHz	190dB re 1uPa @1m	Pole mounted from a vessel or ROV mounted	Kraken Robotics	Kraken Robotics Sub Bottom Imager
USBL (ultra-short baseline)	18-32 kHz	192 dB re 1µPa @ 1m	Vessel mounted transponder – receiver on equipment	Applied Acoustics (2020)	Applied Acoustics EasyTrak Nexus Model EZT-2691
Acoustic Corer	low frequency 1.5 to 6 kHz and high frequency 4.5 to 12 kHz chirp	Peak SL 195dB & 190dB re 1uPa @1m dB	Seabed	Kraken Robotics	Pangeo subsea/Kraken Robotics
Vessel noise	0.05 – 0.3	160 – 175 dB re 1µPa @ 1m	-	Southall et al., 2007	-
Geotechnical Drilling (Rotary)	(0.041 – 0.045kHz)[1] (0.028 – 0.120kHz)[2]	(158.9)[1] (118-145)[2]	Seabed	[1](Long-Fei Huang et al, 2023) [2](SubAcousTech, 2021)	-

Survey technique	Operating frequency (kHz)	Estimated sound level at 1m over frequency band Sound pressure level	Typical length of towed equipment	Source/ Reference	Indicative Equipment Specification
Seismic CPTS	0.001-0.28kHZz	Sound pressure of approx. 145dB re1µPa @1m	Seabed	WEI, 2023	G- Tech GT25

The JNCC Guidance on Assessing the Significance of Noise Disturbance Against Harbour Porpoise SACs Conservation Objectives (JNCC, 2020) has therefore been used to determine the boundary for examination of cumulative effects (Table 5-7). The guidance uses published ranges for effects of noise from different noise producing activities to determine Effective Deterrence Ranges (EDRs). Where evidence is limited for a particular activity, the EDR is informed by studies which consider the most similar sound levels or other appropriate characteristics.

Table 5-7 Noise sources and Effective Deterrence Ranges (EDR)

Survey technique	Operating frequency (kHz)	Estimated sound level at 1m over frequency band Sound pressure level	EDR (JNCC, 2020)
Side-scan sonar (SSS)	300-500 (low) 500-900 (high)	220-230 dB re 1µPa	5km using EDR range for geophysical activity.
Multi-beam Echosounder (MBES)	211	198 re 1µPa @1m	5km using EDR range for geophysical activity.
Single Beam Echosounder	200	221.6 Sound Pressure Level	5km using EDR range for geophysical activity.
Sub Bottom Profiler (Parametric Pinger)	85 - 115	232 Source Level rms (dB re 1 µPa @ 1m)	5km using EDR range for geophysical activity.
Sub Bottom Profiler (Sparker)	0.4-5 kHz	203 dB	5km using EDR range for geophysical activity.
Sub Bottom Profiler (Boomer)	0.1-5	205 (SLrms (dB re 1 µPa m) 211 $SL_{0\text{-}pk}$ (dB re 1 µPa m)	5km using EDR range for geophysical activity.
Sub Bottom Imager (SBI)	4.5 – 12.5 kHz	190dB re 1uPa @1m	5km using EDR range for geophysical activity.

Survey technique	Operating frequency (kHz)	Estimated sound level at 1m over frequency band Sound pressure level	EDR (JNCC, 2020)
USBL (ultra-short baseline)	18-32 kHz	192 dB re 1µPa @ 1m	5km using EDR range for geophysical activity.
Acoustic Corer	low frequency 1.5 to 6 kHz and high frequency 4.5 to 12 kHz chirp	Peak SL 195dB & 190dB re 1uPa @1m dB	5km using EDR range for geophysical activity.
Vessel noise	0.05 – 0.3	160 – 175 dB re 1µPa @ 1m	n/a
Geotechnical Drilling (Rotary)	(0.041 – 0.045kHz)[1] (0.028 – 0.120kHz)[2]	(158.9)[1] (118-145)[2]	n/a
Seismic CPTs	0.001-0.28kHZz	Sound pressure of approx. 145dB re1µPa @1m	12km EDR range for using seismic airguns

In line with Table 5-7 above, the EDR has been conservatively chosen as 12km (the EDR for Seismic CPTs – the largest EDR for the activities considered as part of this application), with projects within this range judged to be within the CESS and taken forward for temporal assessment.

5.6.2 Defining Cumulative Effects Temporal Scope (CETS)

The temporal scope for examination of cumulative effects has been defined considering the period over which the licence activities would take place.

A licence period of up to 7 years is being sought for this project to ensure the licence can enable site investigation works up to the construction of the project. The Cumulative Effects Temporal Scope (CETS) is therefore 7 years.

5.6.3 IMPACT IDENTIFICATION

Impact types that can affect the structure and functions of the Natura 2000 sites considered have been considered as set out in (EC, 2021).

The impacts identified are:

- Physical disturbance and habitat loss
- Disturbance from vibration and underwater noise from survey activities
- Injury due to collision (survey vessels/sampling equipment)
- Physical and airborne noise disturbance to birds
- Pollution event

5.6.4 PATHWAY IDENTIFICATION

Potential cumulative pathways (e.g. via water, air; accumulation of effects in time or space) have been considered as set out in (EC, 2021) and are provided in Table 5-8.

Table 5-8: Impact and potential cumulative pathway identification

Impact	Potential Cumulative Pathway
Physical disturbance and habitat loss	Pathway requires direct spatial overlap or in case of suspended sediment to be within 2 km of sediment source. Potential pathway for physical disturbance and habitat loss impact where there is spatial and temporal overlap.
Disturbance from vibration and underwater noise from survey activities	Pathway possible via sound travelling through water as set out in Section 5.6.1 with impacts possible within CESS where there is temporal overlap with other projects conducting noise producing site investigation activities.
Injury due to collision (survey vessels/sampling equipment)	Pathway requires direct spatial overlap. Potential pathway for injury due to collision between marine mammals and vessels with additional projects vessels where there is direct spatial and temporal overlap.
Physical and airborne noise disturbance to birds	Pathway possible via sound travelling through air, not considered likely to extend beyond MUL application area boundary. Potential pathway for disturbance from the physical presence and noise associated with survey vessels and activities from projects where there is temporal and spatial overlap in the MUL application area boundary.

Impact	Potential Cumulative Pathway
Pollution event	Pathway possible via water and accumulation of effects in time or space. Impacts possible within CESS where there is spatial or temporal overlap with other projects conducting site investigation activities.

5.6.5 PREDICTION

The magnitude and extent of identified likely cumulative effects have been predicted below following EC 2021 guidance.

5.6.5.1 PHYSICAL DISTURBANCE AND HABITAT LOSS

The physical pathway for cumulative impacts for 'Physical disturbance and habitat loss' identified where direct spatial overlap occurs has been considered for potential impacts cumulatively with this and other projects.

There is no overlap between the proposed Maritime Usage Licence area and any SACs designated for the protection of the Qualifying Interest Annex I Habitats. However, Rockabill to Dalkey Island SAC (003000) is adjacent and there is a potential source pathway receptor connection and risk of transport of suspended sediment to the reef from increased sedimentation caused by the proposed site investigation activities and intrusive works undertaken by other projects which are adjacent to or overlap with the SAC. The spatial footprint of the site investigation SI is small and temporary in duration. In addition, these site investigation activities are conducted in a dynamic area (within the Irish Sea, tidal flows are known to interact with and mobilise unconsolidated seabed sediments) so it is considered unlikely that physical disturbance to the reef will be above natural levels experienced. However, as intrusive works undertaken by other projects may contribute to these impacts they will be considered further below.

The North-west Irish Sea candidate SPA (cSPA) overlaps with the Licence Area. There is a possible indirect impact from the proposed works on the supporting habitats of the proposed bird features of the cSPA through disturbance to marine benthic communities and habitat loss impacting the ability of foraging grounds to provide food for foraging birds. Intrusive works undertaken by other projects may contribute to a possible indirect impact on the supporting habitats of the proposed bird features of the cSPA through disturbance to marine benthic communities and habitat loss impacting the ability of foraging grounds to provide food for foraging birds and will be considered further below. The impacts are considered further below.

5.6.5.2 DISTURBANCE FROM VIBRATION AND UNDERWATER NOISE

The underwater noise pathway for cumulative impacts for 'Disturbance from vibration and underwater noise' where temporal overlap occurs has been considered for the potential impacts with this and other projects. There is the potential for underwater noise disturbance effects if geophysical activities with other projects were to take place at the same time. Therefore, significant likely cumulative effects will be considered further.

5.6.5.3 INJURY DUE TO COLLISION

The collision pathway for cumulative impacts 'injury due to collision' has been considered where temporal and spatial overlap occurs between this project and other projects. The magnitude and extent of the cumulative impact of increased collision risk is unlikely to be significant as vessels involved in surveys are either stationary or travelling slowly (at approx. 5 knots), allowing marine mammals time to avoid collision with these vessels. The magnitude and extent of the impact is therefore unlikely to be significant.

5.6.5.4 PHYSICAL AND AIRBORNE DISTURBANCE TO BIRDS

The airborne noise pathway for cumulative impacts to bird species for 'Physical and airborne disturbance' where temporal overlap occurs has been considered for the potential impacts with this and other projects. The North-west Irish Sea cSPA is an important resource for marine birds foraging offshore and roosting in intertidal areas of the cSPA. There is the potential for impacts of physical and airborne disturbance for foraging seabirds or roosting grounds for roosting seabirds designated within the North-west Irish Sea cSPA if airborne noise producing activities with other projects were to take place at the same time. Therefore, significant likely cumulative effects will be considered further.

5.6.5.5 POLLUTION EVENT

The pathway for 'pollution event' has been considered for cumulative impacts between this and other projects in the vicinity. As set out in Section 5.5, the magnitude and extent of the cumulative impact of increased risk of pollution event is unlikely to be significant as all vessels conducting survey activities will be MARPOL compliant and fully certified by the Maritime Safety Office.

5.6.6 IDENTIFICATION OF PLANS AND PROJECTS THAT COULD ACT CUMULATIVELY

Following the approach outlined by (EC, 2021), which suggests that information regarding "characteristics of other plans or projects (implemented, approved or proposed) that may cause in-combination or cumulative effects with the project being assessed on Natura 2000 sites" should be sourced from databases (e.g. on SEA, EIA, appropriate assessments of plans/projects, regional or municipal plans, local authority planning applications) available from Competent Authorities, plans and projects within the CESS and CETS have been examined as part of this SISAA Screening Report.

All consented activities/developments and applications for activities or development within the CESS and CETS have been considered for their potential to cause cumulative effects in combination with the site investigation activities proposed under this Licence Application on Special Areas of Conservation, Special Protection Areas and their qualifying interests.

Searches were conducted of the following:

- Applications and lease/licence database of the Department of Housing, Local Government and Heritage
- Local Authority (Louth, Meath and Dublin County Councils) Planning lists
- An Bord Pleanála Planning Lists
- General internet search (for master plans etc)

- Department of Agriculture Food and the Marine Aquaculture Licence lists
- The Maritime Area Regulatory Authority's Maritime Usage Licence Applications database

As fisheries related maritime use plans are typically not available through the above listed sources, NISA's Fisheries Liaison Officer (FLO) has undertaken a significant level of engagement with local stakeholders, including the fishing community, on the project and plans, with this engagement currently ongoing. The FLO has been consulted as part of this exercise and has confirmed that, based on engagement with local stakeholders, no further projects or plans require consideration.

The activities and developments identified for consideration are shown in Table 5-9. Those overlapping with the NISA Maritime Usage Licence Application Area or within 12 km as indicated in the table are deemed to be within the CESS:

Table 5-9: Activities and Developments identified for consideration as part of the screening exercise

Title	Reference Number	County	Project Type	Status	Distance from NISA MUL Application Area (km)
MaresConnect Electricity Interconnector Site Investigation	FS007635	Dublin	Marine Investigative Survey Works	Consultation	Overlap (64.15 km^2)
Lir Offshore Array Ltd	FS007392	Dublin, Louth and Meath	Offshore Wind Farm Site Investigation Activities	Applied	Overlap (2.12 km^2)
Statkraft North Irish Sea Array (NISA) Site Investigations Array Area	FS007031	Louth and Dublin	Offshore Wind Farm Site Investigation Activities	Determination	Overlap (88.53 km^2)
Statkraft North Irish Sea Array (NISA) Cable Route	FS007358	Dublin	Offshore Wind Farm Site Investigation Activities	Determination	Overlap (36.45 km^2)
SSE Renewables Braymore Point (now Setanta)	FS006973	Louth and Dublin	Offshore Wind Farm Site Investigation Activities	Determination	Overlap (50.12 km^2)
Cooley Point	FS006852	Louth	Offshore Wind Farm Site Investigation Activities	Determination	0.22
Clogher Head	FS006787	Louth	Offshore Wind Farm Site Investigation Activities	Determination	1.5

Meath County Council - Laytown Beach	FS006602	Meath	Coastal Protection	Determination	7.6
Microsoft Ireland Operations Ltd.	LIC230018	Dublin	Subsea Cable	Applied	10.12
Drogheda Port Company - Maintenance Dredging	FS007359	Louth	Maintenance Dredging	Determination	11.6
Irish Water - Omeath Sewerage Scheme	FS006575	Louth	Foreshore Licence application for the purpose of extending an existing outfall pipe and associated works in connection with the proposed Omeath Water Treatment Plant,	Determination	15
Aquaculture/Foreshore Licence Applications - Louth	n/a	Louth	Carlingford Lough Special Protection Area: Appropriate Assessment (Feb 2022). Aquaculture Licence Feb 2023 application forms for Cooley Oysters Ltd. and Charm Louet-Fesser.		15
Meath County Development Plan 2021-2027	n/a	Meath	General - Wastewater management, water treatment plants (new construction in Navan). Flood risk management Mornington/Bettystown scheme. Mornington Dune access and conservation management plan.		15
Louth County Development Plan 2021 - 2027	n/a	Louth	The Louth County Development Plan 2021-2027 sets out the Council's overall strategy for the proper planning and sustainable development of County Louth in accordance with the Planning and Development Act 2000 (as amended).	Plan	15

Rush Sailing Club Landing Pontoon	FS006984	Dublin	Landing Pontoon Construction	Consultation	15.66
Oriel Windfarm Limited	FS007383	Louth	Offshore Wind Farm Site Investigation Activities	Determination	16.9
Microsoft Ireland Operations Ltd.	LIC230016	Dublin	Geophysical Survey for proposed Subsea Cable	Applied	17.69
Greystones Windfarm Ltd	FS007367	Dublin/ Wicklow	Offshore Wind Farm Site Investigation Activities	Applied	19.16
Sunrise	FS007151	Dublin	Offshore Wind Farm Site Investigation Activities	Consultation	22.13
Usice Eireann (Irish Water) Benthic Survey	FS007065	Dublin	Benthic Survey	Determination	25
Leinster Offshore Wind Limited	FS007162	Dublin	Offshore Wind Farm Site Investigation Activities	Applied	31.8
Dublin Array	FS007188	Dublin	Offshore Wind Farm Site Investigation Activities	Determination	32.9
Greenore Port Limited	FS006676	Louth	Capital Dredging	Determination	34.5
Realt na Mara Offshore Wind Farm Ltd	FS007330	Dublin/ Wicklow	Offshore Wind Farm Site Investigation Activities	Applied	34.8
Mac Lir Offshore Wind Limited Site Investigations for proposed Offshore Wind Farm	FS007472	Dublin, Wexford and Wicklow	Offshore Wind Farm Site Investigation Activities	Applied	35.6
Dublin Planning Applications			Dublin Port Company - Alexandra Port		36
Codling Wind Park Ltd	FS007546	Dublin/ Wicklow	Offshore Wind Farm Site Investigation Activities	Determination	36

Sea Stacks	FS007134	Dublin	Offshore Wind Farm Site Investigation Activities	Consultation	36
UCD Soil and Vegetation Sampling - Dundalk Marshes	FS007197	Louth	Soil and vegetation sampling	Applied	37
Dundalk Port Maintenance Dredging	FS007223	Louth	Maintenance Dredging	Determination	37
Tech Works Marine Ltd Data Buoy Deployment	FS007180	Dublin	Data Buoy Deployment	Applied	38.80
Louth County Council	FS006560	Louth	Coastal Protection	Determination	39
Iarnród Eireann	LIC230028	Dublin to Wicklow	Rail Infrastructure	Applied	40
Northeast offshore wind	FS007373		Offshore Wind Farm Site Investigation Activities	Withdrawn	N/A
Meath County Council	FS006513	Meath	Coastal Protection	Withdrawn	N/A

Of these 35 projects and plans, the following 10 are within the CESS:

- Mares Connect Electricity Interconnector Site Investigation
- Lir Offshore Array Ltd (Offshore Wind Farm (OWF))
- Statkraft North Irish Sea Array (NISA) Site Investigations Array Area (OWF)
- Statkraft North Irish Sea Array (NISA) Cable Route (OWF)
- SSE Renewables Braymore Point (now Setanta) (OWF)
- Cooley Point (OWF)
- Clogher Head (OWF)
- Meath County Council – Laytown Beach
- Microsoft Ireland Operations Ltd.
- Drogheda Port Company – Maintenance Dredging

Locations of the projects within the CESS are shown in Figure 5-1 (OWF projects) and Figure 5-2 (non-OWF projects and plans). Note information to facilitate location mapping was not available for all projects identified as within the CESS. Please see Table 5-9 for access to information about locations of these projects.

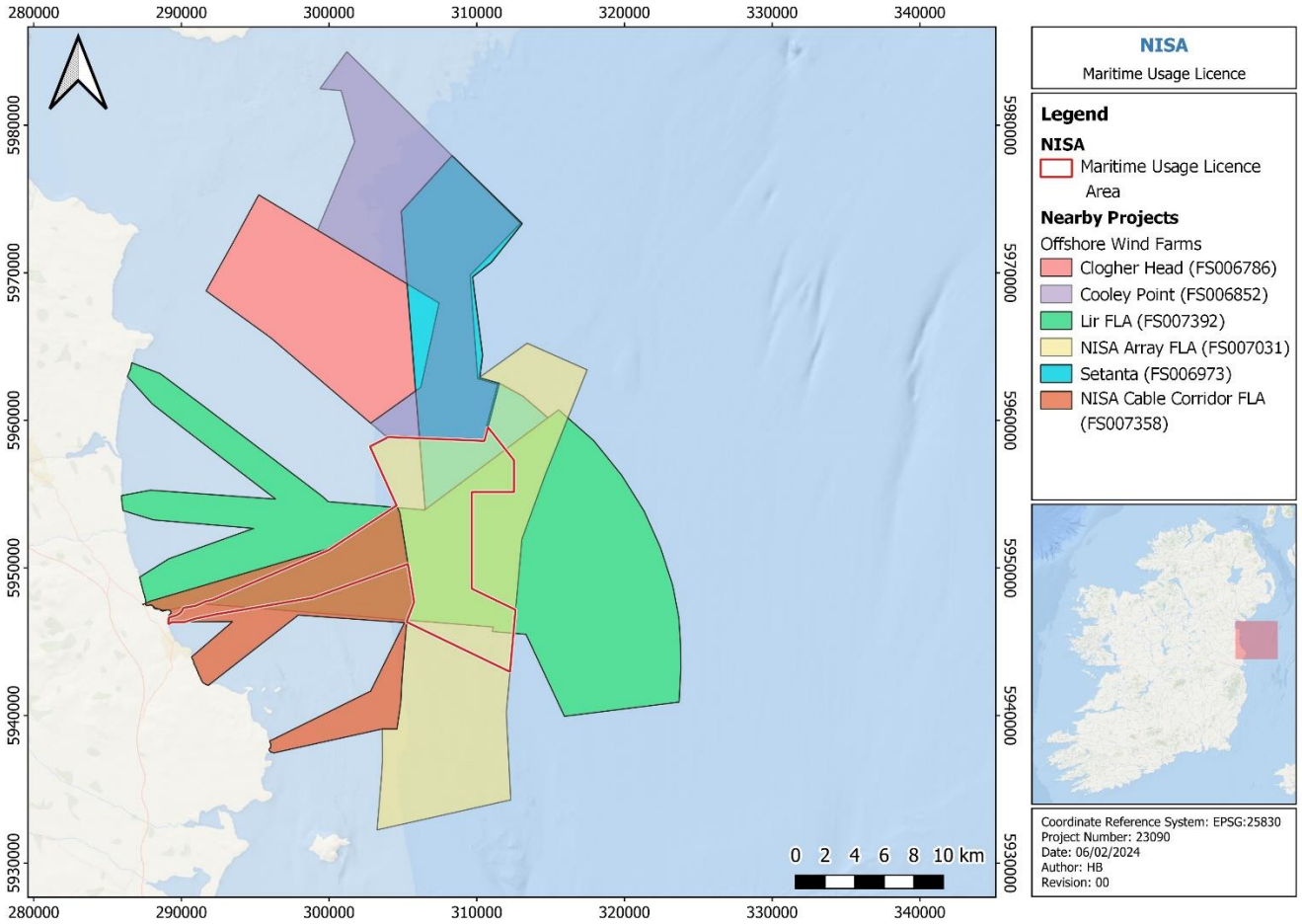

Figure 5-1 Locations of OWF projects and plans within the Cumulative Effects Spatial Scope

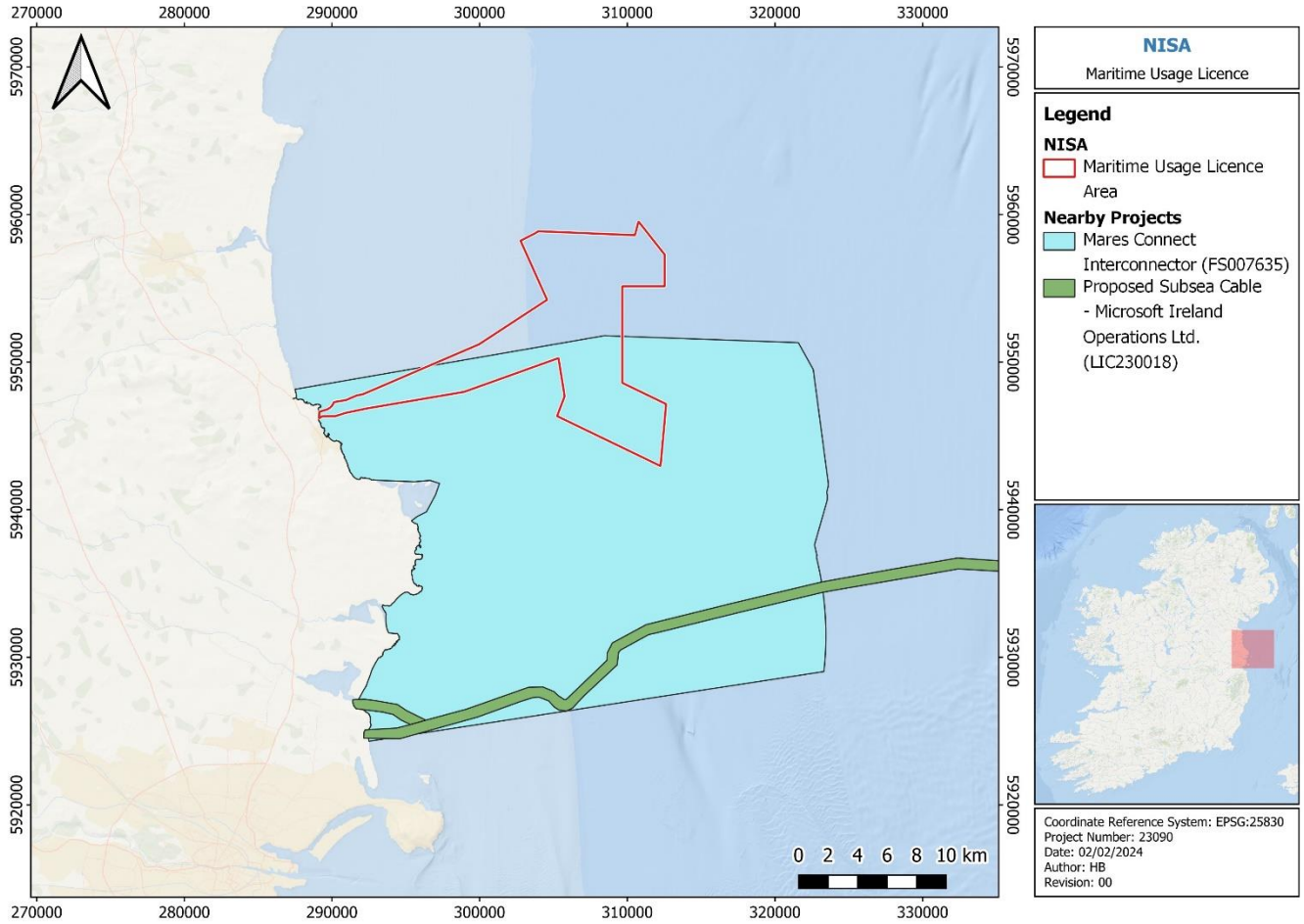

Figure 5-2 Location of non-OWF projects and plans within the Cumulative Effects Spatial Scope

5.6.7 SCREENING STAGE ASSESSMENT CONCLUSION

The conclusion of the cumulative effects assessment between the NISA Maritime Usage Licence Site Investigation activities and other projects is provided in Table 5-10 and Table 5-11, which consider the CESS and CETS respectively. Cumulative effects on fish and marine mammal species features of Natura 2000 sites due to underwater noise emitted by these projects and on foraging seabirds species features of Natura 2000 sites due to indirect impacts on foraging grounds due to physical disturbance and airborne noise disturbance by these projects, if developed, and the proposed NISA Site Investigation Activities are therefore considered **likely** and will be considered further in this assessment.

Table 5-10: Spatial consideration of likelihood of cumulative effects (note only projects found to be within the CESS based on Table 5-9 are included below)

Project/Activity/Development name and application/licence reference number	Licence status	Proposed activities	Within CESS?	Conclusion
Clogher Head FS006787	Determination	Geophysical, Geotechnical and Environmental Site Investigation works	Yes: 1.49 km from MUL application area	**Possible cumulative effects on marine mammals due to underwater noise disturbance if geophysical surveys are undertaken within the same time period.** **Possible cumulative indirect effects on foraging seabirds if geotechnical or physical disturbance activities are undertaken within the same time period.**
Cooley Point FS006852	Determination	Geophysical, Geotechnical and Environmental Site Investigation works	Yes: 0.22 km from MUL application area	
Lir FS007392	Applied	Geophysical, Geotechnical and Environmental Site Investigation works	Yes:	**Possible cumulative effects on marine mammals due to**

Project/Activity/Development name and application/licence reference number	Licence status	Proposed activities	Within CESS?	Conclusion
			Overlaps with site (2.12 km^2)	**underwater noise disturbance if geophysical surveys are undertaken within the same time period.** **Possible cumulative indirect effects on foraging seabirds if geotechnical or physical disturbance activities are undertaken within the same time period.**
Setanta FS006973	Determination	Geophysical, Geotechnical and Environmental Site Investigation works	Overlaps with site (50.12 km^2)	**Possible cumulative effects on marine mammals due to underwater noise disturbance if geophysical surveys are undertaken within the same time period.**

Project/Activity/Development name and application/licence reference number	Licence status	Proposed activities	Within CESS?	Conclusion
				Possible cumulative indirect effects on foraging seabirds if geotechnical or physical disturbance activities are undertaken within the same time period.
Mares Connect Electricity Interconnector. FS007635	Applied	Geophysical, Geotechnical and Environmental Site Investigation works	Yes: Overlaps with site (64.15 km^2)	**Possible cumulative effects on marine mammals due to underwater noise disturbance if geophysical surveys are undertaken within the same time period.** **Possible cumulative effects on habitats due to suspended sediment from**

Project/Activity/Development name and application/licence reference number	Licence status	Proposed activities	Within CESS?	Conclusion
				increased sedimentation caused site investigation activities as project also overlaps with Rockabill to Dalkey Island SAC and indirect effects on foraging seabirds if geotechnical or physical disturbance activities are undertaken within the same time period.
Drogheda Port Company - Maintenance Dredging FS007359 (temporary) and FS007028	Determination	Maintenance Dredging	Yes: 11.6km from MUL application area	**No possible pathway for cumulative effects.**
Microsoft Ireland Operations Ltd.	Applied	Geophysical survey and site investigations for a proposed subsea fibre optic cable. Cable	Yes:	**Possible cumulative effects on marine mammals due to**

Project/Activity/Development name and application/licence reference number	Licence status	Proposed activities	Within CESS?	Conclusion
LIC230018		route surveys timing planned for early Q2 2024 over a 2 month period	10.12 km from MUL application area	**underwater noise disturbance if geophysical surveys are undertaken within the same time period.**
Meath County Council - Laytown Beach FS006602	Determination	Foreshore licence application for the removal of the existing damaged gabion sea defence system and its replacement with a new sea defence system using a rock armour revetment at Laytown Beach. Proposed works anticipated at earliest March 2017 and latest May 2017. Notice of determination in 2018	Yes: 7.64 km from MUL application area	**No possible pathway for cumulative effects.**
Statkraft North Irish Sea Array (NISA) Cable Route FS007358	Determination	Offshore Wind Farm Site Investigation Activities	Yes: Overlaps with site (36.45 km^2)	**Possible cumulative effects on marine mammals due to underwater noise disturbance if geophysical surveys are undertaken within the same time period.**

Project/Activity/Development name and application/licence reference number	Licence status	Proposed activities	Within CESS?	Conclusion
				Possible cumulative effects on habitats due to suspended sediment from increased sedimentation caused site investigation activities as project also overlaps with Rockabill to Dalkey Island SAC and indirect effects on foraging seabirds if geotechnical or physical disturbance activities are undertaken within the same time period.
Statkraft North Irish Sea Array (NISA) Site Investigations Array Area FS007031	Determination	Offshore Wind Farm Site Investigation Activities	Yes: Overlaps with site (88.53 km^2)	**Possible cumulative effects on marine mammals due to underwater noise disturbance if**

Project/Activity/Development name and application/licence reference number	Licence status	Proposed activities	Within CESS?	Conclusion
				geophysical surveys are undertaken within the same time period. **Possible cumulative effects on habitats due to suspended sediment from increased sedimentation caused site investigation activities as project also overlaps with Rockabill to Dalkey Island SAC and indirect effects on foraging seabirds if geotechnical or physical disturbance activities are undertaken within the same time period.**

Table 5-11: Temporal consideration of likelihood of cumulative effects (note only projects identified as having spatial overlap in Table 5-10 have been considered in this table)

Project/Activity/Development name and application/licence reference number	Licence status	Proposed activities	Within CETS?	Conclusion
Lir FS007392	Applied	Geophysical, Geotechnical and Environmental Site Investigation works	Site Investigation works may be carried out at the same time as the site investigation works proposed in this application, however FS007392 will not be progressed unless the Lir Application Area is in a DMAP. No timeline is available for publication of the next DMAP, however progress to date with the South Coast DMAP and the ORESS 2.1 Indicative Roadmap indicate it would take 24-36 months for Lir to receive a Site Investigation Licence Licence from when the draft DMAP is published, if the Lir Application Area is	**Possible cumulative effects on marine mammals due to underwater noise disturbance if geophysical surveys are undertaken within the same time period.** **Possible cumulative indirect effects on foraging seabirds if geotechnical or physical disturbance activities are undertaken within the same time period.**

Project/Activity/Development name and application/licence reference number	Licence status	Proposed activities	Within CETS?	Conclusion
			in the next DMAP. Therefore, it is considered possible that there could be temporal overlap.	
Setanta FS006973	Determination	Geophysical, Geotechnical and Environmental Site Investigation works	Site Investigation works may be carried out at the same time as the site investigation works proposed in this application, however it is considered unlikely these would take place unless the Setanta Application Area is in a DMAP, as the project will not be able to obtain a MAC and proceed to planning. No timeline is available for publication of the next DMAP, however progress to date with the South Coast DMAP and the ORESS 2.1 Indicative Roadmap indicate it would take 24-36 months for Setanta to receive a Site	**Possible cumulative effects on marine mammals due to underwater noise disturbance if geophysical surveys are undertaken within the same time period.** **Possible cumulative indirect effects on foraging seabirds if geotechnical or physical disturbance activities are undertaken within the same time period.**

Project/Activity/Development name and application/licence reference number	Licence status	Proposed activities	Within CETS?	Conclusion
			Investigation Licence Licence from when the draft DMAP is published, if the Setanta Application Area is in the next DMAP. Therefore, it is considered possible that there could be temporal overlap.	
Mares Connect Electricity Interconnector. FS007635	Applied	Geophysical, Geotechnical and Environmental Site Investigation works	Mares intend to carry out survey works as soon as feasible, and within five years following the award of the Foreshore Licence. Therefore, it is considered possible that there could be any temporal overlap.	**Possible cumulative effects on marine mammals due to underwater noise disturbance if geophysical surveys are undertaken within the same time period.** **Possible cumulative effects on habitats due to suspended sediment from increased sedimentation caused site investigation activities as project also**

Project/Activity/Development name and application/licence reference number	Licence status	Proposed activities	Within CETS?	Conclusion
				overlaps with Rockabill to Dalkey Island SAC and indirect effects on foraging seabirds if geotechnical or physical disturbance activities are undertaken within the same time period.
Cooley Point FS006852	Determination	Geophysical, Geotechnical and Environmental Site Investigation works	Site Investigation works may be carried out at the same time as the site investigation works proposed in this application, however it is considered unlikely these would take place unless the Cooley Point Application Area is in a DMAP, as the project will not be able to obtain a MAC and proceed to planning. No timeline is available for publication of the next DMAP, however progress to date with the	**Possible cumulative effects on marine mammals due to underwater noise disturbance if geophysical surveys are undertaken within the same time period.** **Possible cumulative indirect effects on foraging seabirds if geotechnical or physical disturbance activities**

Project/Activity/Development name and application/licence reference number	Licence status	Proposed activities	Within CETS?	Conclusion
			South Coast DMAP and the ORESS 2.1 Indicative Roadmap indicate it would take 24-36 months for Cooley Point to receive a Site Investigation Licence Licence from when the draft DMAP is published, if the Cooley Point Application Area is in the next DMAP. Therefore, it is considered possible that there could be temporal overlap.	**are undertaken within the same time period.**
Clogher Head FS006787	Determination	Geophysical, Geotechnical and Environmental Site Investigation works	Site Investigation works may be carried out at the same time as the site investigation works proposed in this application, however it is considered unlikely these would take place unless the Clogher Head Offshore Wind farm Application Area is in a DMAP, as the project will not be able to obtain a MAC and proceed	**Possible cumulative effects on marine mammals due to underwater noise disturbance if geophysical surveys are undertaken within the same time period.** **Possible cumulative indirect effects on**

Project/Activity/Development name and application/licence reference number	Licence status	Proposed activities	Within CETS?	Conclusion
			to planning. No timeline is available for publication of the next DMAP, however progress to date with the South Coast DMAP and the ORESS 2.1 Indicative Roadmap indicate it would take 24-36 months for Clogher Head to receive a Site Investigation Licence Licence from when the draft DMAP is published, if the area is in the next DMAP. Therefore, it is considered possible that there could be temporal overlap.	**foraging seabirds if geotechnical or physical disturbance activities are undertaken within the same time period.**
Microsoft Ireland Operations Ltd. LIC230018	Applied	Geophysical survey and site investigations for a proposed subsea fibre optic cable. Cable route surveys timing planned for early Q2 2024 over a 2 month period	Planned for early Q2 2024 over a 2-month period	**Possible cumulative effects on marine mammals due to underwater noise disturbance if geophysical surveys are undertaken within the same time period.**

Project/Activity/Development name and application/licence reference number	Licence status	Proposed activities	Within CETS?	Conclusion
Statkraft North Irish Sea Array (NISA) Cable Route FS007358	Determination	Offshore Wind Farm Site Investigation Activities	Licence granted on 1st September 2022 for period of 3 years.	**Possible cumulative effects on marine mammals due to underwater noise disturbance if geophysical surveys are undertaken within the same time period.** **Possible cumulative effects on habitats due to suspended sediment from increased sedimentation caused site investigation activities as project also overlaps with Rockabill to Dalkey Island SAC and indirect effects on foraging seabirds if geotechnical or physical disturbance activities are undertaken within the same time period.**

Project/Activity/Development name and application/licence reference number	Licence status	Proposed activities	Within CETS?	Conclusion
Statkraft North Irish Sea Array (NISA) Site Investigations Array Area FS007031	Determination	Offshore Wind Farm Site Investigation Activities	Licence granted on 1st November 2021 for period of 5 years.	**Possible cumulative effects on marine mammals due to underwater noise disturbance if geophysical surveys are undertaken within the same time period.** **Possible cumulative effects on habitats due to suspended sediment from increased sedimentation caused site investigation activities as project also overlaps with Rockabill to Dalkey Island SAC and indirect effects on foraging seabirds if geotechnical or physical disturbance activities are undertaken within the same time period.**

Geotechnical and geophysical survey activities outlined in this Maritime Usage Licence Application for site investigation works could cause potential cumulative effects with activities undertaken by the following projects: Lir (FS007392), Setanta (FS006973), Cooley Point (FS006852), Clogher Head (FSS006787), Statkraft North Irish Sea Array (NISA) Cable Route (FS007358), Statkraft North Irish Sea Array (NISA) Site Investigations Array Area (FS007031), Microsoft Ireland Operations Ltd (LIC230018) and Mares Connect Electricity Interconnector (FS007635).

Natura 2000 sites which may be affected by cumulative impacts of these activities (i.e. those within the CESS and CETS of the activities) are therefore screened in for Stage 2 Appropriate Assessment and **will be** considered further in the **Natura Impact Statement**.

6 SCREENING DETERMINATION STATEMENT

The following SACs and QIs and SPA and SCIs have been screened in for stage 2 Appropriate Assessment as they have designated mobile species that may enter the Maritime Usage Licence Area:

Table 6-1 Appropriate Assessment Screening Summary by Species for Mobile Marine Mammals

Summary of Relevant Sites	Species	Relevant Information
Rockabill to Dalkey Island SAC (003000) Roaringwater Bay And Islands SAC (000101) Blasket Islands SAC (002172 North Anglesey Marine / Gogledd Môn Forol SAC (UK0030398) North Channel SAC (UK0030399) West Wales Marine SAC (UK0030397) Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC (UK 0030396) Mers Celtiques - Talus du golfe de Gascogne FR5212016 Abers - Côte des legends FR5300017 Ouessant-Molène FR5310072 Nord Bretagne DH FR2502022 Cote de Granit Rose-Sept Iles FR5310011 Tregor Goëlo FR5310070 Côtes de Crozon FR5302006 Chaussée de Sein FR5302007 Récifs du talus du golfe de Gascogne FR5302016 Récifs et landes de la Hague FR2500084 Anse de Vauville FR2502019	Harbour Porpoise *(Phocoena phocoena)*	The harbour porpoise is the smallest and most abundant cetacean in Irish waters and possibly the most abundant in the northeast Atlantic. It is common around the entire Irish coast. Sightings are common from June through the autumn/winter period but reduced sightings in spring suggest they move offshore, possibly to calving/breeding grounds. Harbour porpoise is one of two cetacean species with designated SACs considered within this Appropriate Assessment Screening. They utilise in-water acoustics for communication and echolocation and are sensitive to the noise generated by the site investigation activities (Richardson et al., 1995). Porpoises are "high-frequency" cetaceans sensitive to noise in the 200Hz – 180kHz range (Southall et al., 2007). The greatest potential impact on this species from the proposed site investigation activities would be from noise generated by SBP and HESS. This activity has the potential to be within the hearing threshold of harbour porpoise. This species is a mobile species which may be found within the Maritime Usage Licence Area and therefore, there is the possibility of likely significant effect on the conservation objectives for this species in the absence of mitigation measures, therefore this species and the relevant SACs are **screened in for Stage 2 Appropriate Assessment.**

Summary of Relevant Sites	Species	Relevant Information
Cap d'Erquy-Cap Fréhel FR5300011 Baie de Saint-Brieuc – Est FR5300066 Banc et récifs de Surtainville FR2502018 Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard FR5300012 Chausey FR2510037 Estuaire de la Rance FR5300061 Baie du Mont Saint Michel FR2510048		
Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau SAC (UK 0013117) Cardigan Bay/ Bae Ceredigion SAC (UK0012712)	Bottlenose Dolphin (*Tursiops truncatus*)	The Bottlenose dolphin is one of two cetacean species with a designated SAC considered within this Appropriate Assessment Screening. They utilise in-water acoustics for communication and echolocation and are sensitive to the noise generated by the site investigation activities (Richardson et al., 1995). Bottlenose dolphin hear in the mid frequency range (150 – 160,000 Hz) (DAHG, 2014). The greatest impact on this species from the proposed site investigation activities would be the noise generated by sub-bottom profiler (SBP). This has the potential to be within the hearing threshold of bottlenose dolphin. This species is mobile which may be found within the Maritime Usage Licence Area and therefore there is the possibility of likely significant effects on the conservation objectives for this species in the absence of mitigation measures. Therefore, this species and the relevant SACs are **screened in for Stage 2 Appropriate Assessment**.
Lambay Island SAC (000204) Saltee Islands SAC (000707) Horn Head and Rinclevan SAC (000147) Slieve Tooey/ Tormore Island/Loughros Beg Bay SAC (000190) Roaringwater Bay And Islands SAC (000101)	Grey Seal *(Halichoerus grypus)*	The Grey seal is the larger and more abundant of the two seal species resident in Ireland. They spend much of the year at sea and may range widely in search of prey. They come ashore in autumn to form breeding colonies on rocky shores, beaches and caves – often on small uninhabited islands. They are found all around the coast wherever habitats are suitable and are most abundant along the exposed south, southwest and west coasts. The two major Irish breeding sites for grey seals are the Inishkea Islands (Mayo) and the Blasket Islands (Kerry). Smaller groups breed at Lambay Island (Dublin), Slyne Head (Galway) and the Saltee Islands (Wexford).

Summary of Relevant Sites	Species	Relevant Information
Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau SAC (UK 0013117) The Maidens SAC (UK 0030384) Cardigan Bay/ Bae Ceredigion SAC (UK0012712) Pembrokeshire Marine SAC (UK0013116) Lundy SAC (UK0013114) Treshnish Isles (UK0030289) Isles of Scilly Complex SAC (UK0013694)		The Grey seal is listed as a protected Annex II species for SACs assessed in this Appropriate Assessment Screening. The Grey Seal can hear sound in water at low frequencies relative to cetaceans (75Hz – 75kHz) (Southall et al., 2007) and would be sensitive to the noise from the survey equipment and vessels. As it is a mobile species with the potential to be present Within the Maritime Usage Licence Area and therefore, there is the possibility of likely significant effect on the conservation objectives for this species in the absence of mitigation measures. This species and the relevant SACs are **screened in for Stage 2 Appropriate Assessment.**
Lambay Island SAC (000204) Slaney River Valley SAC (000781) Murlough (UK0016612) Strangford Lough SAC (UK0016618)	Common (Harbour) Seal *(Phoca vitulina)*	The common, or harbour seal, is the smaller of the two seal species resident in Ireland. Despite its name, it is less common than the grey seal. The common seal is the characteristic seal of sandflats and estuaries but are also found on rocky shores. Seals may range widely in search of prey, but individuals often return to favoured haul-out sites to rest or to give birth. The Common seal is listed as a protected Annex II species for SACs assessed in this Appropriate Assessment Screening. The Common Seal can hear sound in water at low frequencies relative to cetaceans (75Hz – 75kHz) (Southall et al., 2007) and would be sensitive to the noise from the survey equipment and vessels. As it is a mobile species with the potential to be present Within the Maritime Usage Licence Area and therefore, there is the possibility of likely significant effect on the conservation objectives for this species in the absence of mitigation measures. This species is and the relevant SACs are **screened in for Stage 2 Appropriate Assessment.**

Table 6-2 SAC with their relevant Mobile Annex II species and distance to the Licence Area

Site name	Qualifying Interest	Distance to MUL (km)	Impact
Rockabill to Dalkey Island SAC (003000)	**Harbour Porpoise (*Phocoena phocoena)***	2.64	Disturbance due to underwater noise associated with surveys
Lambay Island SAC (000204)	**Grey Seal (*Halichoerus grypus*)** **Harbour Seal (*Phoca vitulina*)**	14.82	Disturbance due to underwater noise

			associated with surveys
Slaney River Valley SAC (000781)	**Harbour Seal (*Phoca vitulina*)**	145.59	Disturbance due to underwater noise associated with surveys
Saltee Islands SAC (000707)	**Grey Seal (*Halichoerus grypus*)**	174.14	Disturbance due to underwater noise associated with surveys
Horn Head and Rinclevan SAC (000147)	**Grey Seal (*Halichoerus grypus*)**	304.53	Disturbance due to underwater noise associated with surveys
Slieve Tooey/ Tormore Island/Loughros Beg Bay SAC (000190)	**Grey Seal (*Halichoerus grypus*)**	375.12	Disturbance due to underwater noise associated with surveys
Roaringwater Bay And Islands SAC (000101)	**Grey Seal (*Halichoerus grypus*)** **Harbour Porpoise (*Phocoena phocoena*)**	387.83	Disturbance due to underwater noise associated with surveys
Blasket Islands SAC (002172	**Harbour Porpoise (*Phocoena phocoena*)**	503.93	Disturbance due to underwater noise associated with surveys
North Anglesey Marine / Gogledd Môn Forol SAC (UK0030398)	**Harbour Porpoise (*Phocoena phocoena*)**	35.35	Disturbance due to underwater noise associated with surveys
Murlough (UK0016612)	**Harbour Seal (*Phoca vitulina*)**	41.52	Disturbance due to underwater noise associated with surveys
Strangford Lough SAC (UK0016618)	**Harbour Seal (*Phoca vitulina*)**	67.71	Disturbance due to underwater noise associated with surveys
North Channel SAC (UK0030399)	**Harbour Porpoise (*Phocoena phocoena*)**	74.26	Disturbance due to underwater noise associated with surveys
West Wales Marine SAC (UK0030397)	**Harbour Porpoise (*Phocoena phocoena*)**	103.40	Disturbance due to underwater noise associated with surveys
Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau SAC (UK 0013117)	**Grey Seal (*Halichoerus grypus*)** **Bottlenose dolphin (*Tursiops truncates*)**	106.82	Disturbance due to underwater noise associated with surveys
The Maidens SAC (UK 0030384)	**Grey Seal (*Halichoerus grypus*)**	135.57	Disturbance due to underwater noise

			associated with surveys
Cardigan Bay/ Bae Ceredigion SAC (UK0012712)	**Grey Seal (*Halichoerus grypus*) Bottlenose dolphin (*Tursiops truncates*)**	161.94	Disturbance due to underwater noise associated with surveys
Pembrokeshire Marine SAC (UK0013116)	**Grey Seal (*Halichoerus grypus*)**	186.02	Disturbance due to underwater noise associated with surveys
South-East Islay Skerries (UK0030067)	**Harbour Seal (*Phoca vitulina*)**	221.22	Disturbance due to underwater noise associated with surveys
Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC (UK 0030396)	**Harbour Porpoise (*Phocoena phocoena*)**	246.78	Disturbance due to underwater noise associated with surveys
Lundy SAC (UK0013114)	**Grey Seal (*Halichoerus grypus*)**	281.33	Disturbance due to underwater noise associated with surveys
Treshnish Isles (UK0030289)	**Grey Seal (*Halichoerus grypus*)**	322.25	Disturbance due to underwater noise associated with surveys
Isles of Scilly Complex SAC (UK0013694)	**Grey Seal (*Halichoerus grypus*)**	401.56	Disturbance due to underwater noise associated with surveys
Mers Celtiques - Talus du golfe de Gascogne FR5212016	**Harbour Porpoise (*Phocoena phocoena*)**	499.93	Disturbance due to underwater noise associated with surveys
Abers - Côte des legends FR5300017	**Harbour Porpoise (*Phocoena phocoena*)**	569.02	Disturbance due to underwater noise associated with surveys
Ouessant-Molène FR5310072	**Harbour Porpoise (*Phocoena phocoena*)**	570.17	Disturbance due to underwater noise associated with surveys
Nord Bretagne DH FR2502022	**Harbour Porpoise (*Phocoena phocoena*)**	528.65	Disturbance due to underwater noise associated with surveys
Cote de Granit Rose-Sept Iles FR5310011	**Harbour Porpoise (*Phocoena phocoena*)**	577.04	Disturbance due to underwater noise associated with surveys
Tregor Goëlo FR5310070	**Harbour Porpoise (*Phocoena phocoena*)**	599.97	Disturbance due to underwater noise

			associated with surveys
Côtes de Crozon FR5302006	**Harbour Porpoise (*Phocoena phocoena*)**	607.97	Disturbance due to underwater noise associated with surveys
Chaussée de Sein FR5302007	**Harbour Porpoise (*Phocoena phocoena*)**	618.96	Disturbance due to underwater noise associated with surveys
Récifs du talus du golfe de Gascogne FR5302016	**Harbour Porpoise (*Phocoena phocoena*)**	634.98	Disturbance due to underwater noise associated with surveys
Récifs et landes de la Hague FR2500084	**Harbour Porpoise (*Phocoena phocoena*)**	665.42	Disturbance due to underwater noise associated with surveys
Anse de Vauville FR2502019	**Harbour Porpoise (*Phocoena phocoena*)**	666.65	Disturbance due to underwater noise associated with surveys
Cap d'Erquy-Cap Fréhel FR5300011	**Harbour Porpoise (*Phocoena phocoena*)**	668.00	Disturbance due to underwater noise associated with surveys
Baie de Saint-Brieuc – Est FR5300066	**Harbour Porpoise (*Phocoena phocoena*)**	669.00	Disturbance due to underwater noise associated with surveys
Banc et récifs de Surtainville FR2502018	**Harbour Porpoise (*Phocoena phocoena*)**	670.83	Disturbance due to underwater noise associated with surveys
Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard FR5300012	**Harbour Porpoise (*Phocoena phocoena*)**	693.97	Disturbance due to underwater noise associated with surveys
Chausey FR2510037	**Harbour Porpoise (*Phocoena phocoena*)**	692.53	Disturbance due to underwater noise associated with surveys
Estuaire de la Rance FR5300061	**Harbour Porpoise (*Phocoena phocoena*)**	708.36	Disturbance due to underwater noise associated with surveys
Baie du Mont Saint Michel FR2510048	**Harbour Porpoise (*Phocoena phocoena*)**	718.06	Disturbance due to underwater noise associated with surveys

Table 6-3 Appropriate Assessment Screening by SPA[6] with relevant information

Summary of Relevant Sites	Species	Distance to MUL	Relevant Information
North-west Irish Sea cSPA (004236)	Common Scoter (*Melanitta nigra*) Red-throated Diver (*Gavia stellata*) Great Northern Diver (*Gavia immer*) Fulmar (Fulmarus glacialis) Manx Shearwater (*Puffinus puffinus*) Shag (*Phalacrocorax aristotelis*) Cormorant (*Phalacrocorax carbo*) Little Gull (*Larus minutus*) Kittiwake (*Rissa tridactyla*) Black-headed Gull (Chroicocephalus ridibundus) Common Gull (*Larus canus*) Lesser Black-backed Gull (*Larus fuscus*) Herring Gull (*Larus argentatus*) Great Black-backed Gull (*Larus marinus*) Little Tern (*Sterna albifrons*) Roseate Tern (*Sterna dougallii*) Common Tern (*Sterna hirundo*) Arctic Tern (*Sterna paradisaea*) Puffin (*Fratercula arctica*) Razorbill (*Alca torda*) Guillemot (*Uria aalge*)	Direct Overlap (124.99 km^2)	The North-west Irish Sea cSPA is an important resource for marine birds. The marine areas offshore and intertidal areas provide supporting habitats for seabirds at the cSPA. Therefore, as likely significant effects cannot be ruled out for indirect impacts of physical disturbance on foraging grounds for foraging seabirds and on roosting grounds for roosting seabirds, the species and cSPA are **screened in for Stage 2 Appropriate Assessment**.

[6] Note North-West Irish Sea cSPA, which was publicly advertised in July 2023, is not a designated SPA but is included as sites are legally protected once they are publicly advertised (NPWS, 2012).

7 SCREENING STATEMENT OUTCOME

42 no. SACs, 110 no. SPAs, which includes the North-West Irish Sea cSPA and the Seas off Wexford cSPA, were considered for the potential for likely significant effects to arise via the identified source-receptor-pathways.

Screening has found that likely significant effects on 41 no. Natura 2000 sites as a result of the proposed project could not be excluded. The possibility of likely significant effects from underwater noise on Annex II species of harbour porpoise, bottlenose dolphin, grey seal, and common seal could not be excluded. The possibility of likely significant effects due to physical disturbance to marine benthic communities and habitat loss impacting foraging grounds for foraging birds and roosting grounds for roosting birds could not be ruled out for bird species at the North-west Irish Sea cSPA.

These sites will therefore require further information to be provided within a Natura Impact Statement (NIS) to support a Stage 2 AA.

Therefore, the following species and their corresponding SACs and the cSPA have been screened in for further consideration and must proceed to a Stage 2 Appropriate Assessment (Natura Impact Statement):

- Harbour porpoise
- Bottlenose dolphin
- Grey seal
- Common/harbour seal
- Common Scoter (*Melanitta nigra*)
- Red-throated Diver (*Gavia stellata*)
- Great Northern Diver (*Gavia immer*)
- Fulmar (Fulmarus glacialis)
- Manx Shearwater (*Puffinus puffinus*)
- Shag (*Phalacrocorax aristotelis*)
- Cormorant (*Phalacrocorax carbo*)
- Little Gull (*Larus minutus*)
- Kittiwake (*Rissa tridactyla*)
- Black-headed Gull (Chroicocephalus ridibundus)
- Common Gull (*Larus canus*)
- Lesser Black-backed Gull (*Larus fuscus*)
- Herring Gull (*Larus argentatus*)
- Great Black-backed Gull (*Larus marinus*)
- Little Tern (*Sterna albifrons*)
- Roseate Tern (*Sterna dougallii*)
- Common Tern (*Sterna hirundo*)

- Arctic Tern (*Sterna paradisaea*)
- Puffin (*Fratercula arctica*)
- Razorbill (*Alca torda*)
- Guillemot (*Uria aalge*)

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APPENDIX I: BIRD ZONE OF INFLUENCE RATIONALE

Data on foraging movements of a number of seabird species has increased over the years mainly due to technological data capture systems such as satellite and other tracking technologies (e.g. Langston et al. 2013, Wakefield et al. 2015, 2017, Thaxter et al. 2014, 2018, Cleasby et al. 2015, 2020, Bogdanova et al. 2017, Carter et al. 2016, EPA et al. 2016, Votier et al. 2017). Available information on foraging areas used by species from particular colonies is still limited. Woodward et al. (2019) have reported on representative breeding season foraging ranges for a range of species.

Table 0-1 provides indicative foraging ranges (mean maximum) travelled for a range of seabird species from a breeding colony to a foraging area, which have been used to identify relevant sites on the basis that related Qualifying Interests could interact with the Maritime Usage Licence Area during site investigation activities. The mean maximum foraging range values are used to address potential interaction with relevant SPAs; however bird density will not be continuous throughout this range. Other ways of representing foraging ranges (e.g. the mean, or percentage foraging area derived from kernel analyses) may therefore provide more useful information, where available.

Whilst applying mean maximum foraging radius would encompass the majority of a population's home-range area, the overall size of the predicted foraging areas around the colony would potentially make it too large to be a useful management tool, without further refinement using habitat and bathymetric data (Soanes et al. 2016). Similarly, the assumption that seabirds are uniformly distributed out to some threshold distance from their colonies, such as their putative maximum foraging range, is unrealistic. Seabird density declines with distance from the colony with density-dependent competition, coastal morphology and habitat preferences (Wakefield et al. 2017), for example oceanographic features at which seabirds preferentially forage including shelf-edge fronts, upwelling and tidal-mixing fronts, offshore banks and internal waves, regions of stratification, and topographically complex coastal areas subject to strong tidal flow (Cox et al. 2018), resulting in highly non-uniform distributions. While Critchley et al. (2018) used a distance-weighted foraging radius approach to project distributions at sea for a wide range of seabird species during the breeding season, the authors recognised the limitations of not considering environmental variables that contribute to such non-uniform distributions noted above.

The selection of all sites outlined in Section 4 within the mean maximum foraging range of the Maritime Usage Licence Area is a useful but simplistic approach to identifying relevant sites. The approach taken here has been to review the initial selection of sites on this basis and use expert judgement to exclude those for which an interaction would be unrealistic. For example, sites where Fulmar is identified as a Qualifying Interest on the far north and west of Ireland as Fulmar's are highly pelagic seabirds and are highly unlikely to move large distances over land which could bring them to within the Maritime Usage Licence Area. The potential mean maximum foraging range for this species has therefore been applied across the marine area, including where birds could move around headlands.

To aid in the selection process in identifying the mean maximum foraging ranges for the relevant SPAs within the zone of influence of the Maritime Usage Licence Area and the investigation activities measurements were taken across landward distance, seaward distance and some measured across headlands where there were large areas of land that could be covered. This process was used to ensure all distance measurements and foraging ranges were considered in the assessment and screening process for the seabird ranges that were identified from Woodward et al., 2019).

Table 0-1 Indicative breeding season foraging ranges (Woodward et al, 2019)

Indicative breeding season foraging ranges		
Species	Mean maximum[1] (km ± SD)	Confidence Level[2]
Eider	21.5	Poor
Red-throated diver	9	Low
Fulmar	542.3 ± 657.9	Good
Manx shearwater	1,346.8 ±,1,018.7	Moderate
European storm petrel	336	Poor
Leach's storm petrel	n/a	Moderate
Gannet	315.2 ± 194.2	Highest
Cormorant	25.6 ± 8.3	Moderate
Shag	13.2 ± 10.5	Highest
Arctic skua	n/a	Poor
Great skua	443.3 ± 487.9	Uncertain
Black-headed gull	18.5	Uncertain
Common gull	50	Poor
Mediterranean gull	20	Uncertain
Herring gull	58.8 ± 26.8	Good
Lesser black-backed gull	127 ± 109	Highest
Kittiwake	156.1 ± 144.5	Good
Sandwich tern	34.3 ± 23.2	Moderate
Roseate tern	12.6 ± 10.6	Moderate
Common tern	18.0 ± 8.9	Good
Arctic tern	25.7 ± 14.8	Good
Little tern	5	Moderate
Guillemot	73.2 ± 80.5	Highest
Razorbill	88.7 ± 75.9	Good
Puffin	137.1 ± 128.3	Good

[1]The maximum range reported in each study averaged across studies.
[2] Confidence levels were assigned as follows: highest (based on >5 direct studies, graphs and standard deviation suggest relatively low variability between sites and hence higher confidence); good (based on >5 direct studies; graphs and standard deviation show wider variability between sites, hence lower confidence); moderate (between 2-5 direct studies); low (indirect measures or only one direct tracking study); uncertain (survey-based estimates); poor (few survey estimates or speculative data available).

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