

REPORT

Non-Statutory Environmental Report

Wicklow Export Cable Corridor Foreshore Licence
Application

Client: Wicklow Sea Wind Limited

Reference: UB1019-RHD-ZZ-XX-RP-Z-0012

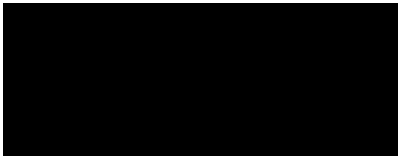
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1 Introduction

Wicklow Sea Wind Limited are applying for a foreshore licence under section 3 of the Foreshore Act 1933, as amended (“the **1933 Act**”), to undertake marine surveys as described in the Schedule of Works (Royal HaskoningDHV, 2022a – document reference UB1019-RHD-ZZ-XX-RP-Z-0011) (“the **Schedule of Works**”).

The marine surveys are to assess the suitability of the proposed licence area for the installation of an export cable corridor to connect an offshore wind farm (“the **Wicklow Project**” – **Wicklow Foreshore Licence Application: Reference FS007163**) to the coastline. The proposed cable Area of Search (AoS) lies within the “foreshore” as defined in the 1933 Act, off the east coast of Ireland in the Irish Sea. **Figure 1** shows the location of the proposed cable AoS.

1.1 Proposed Surveys

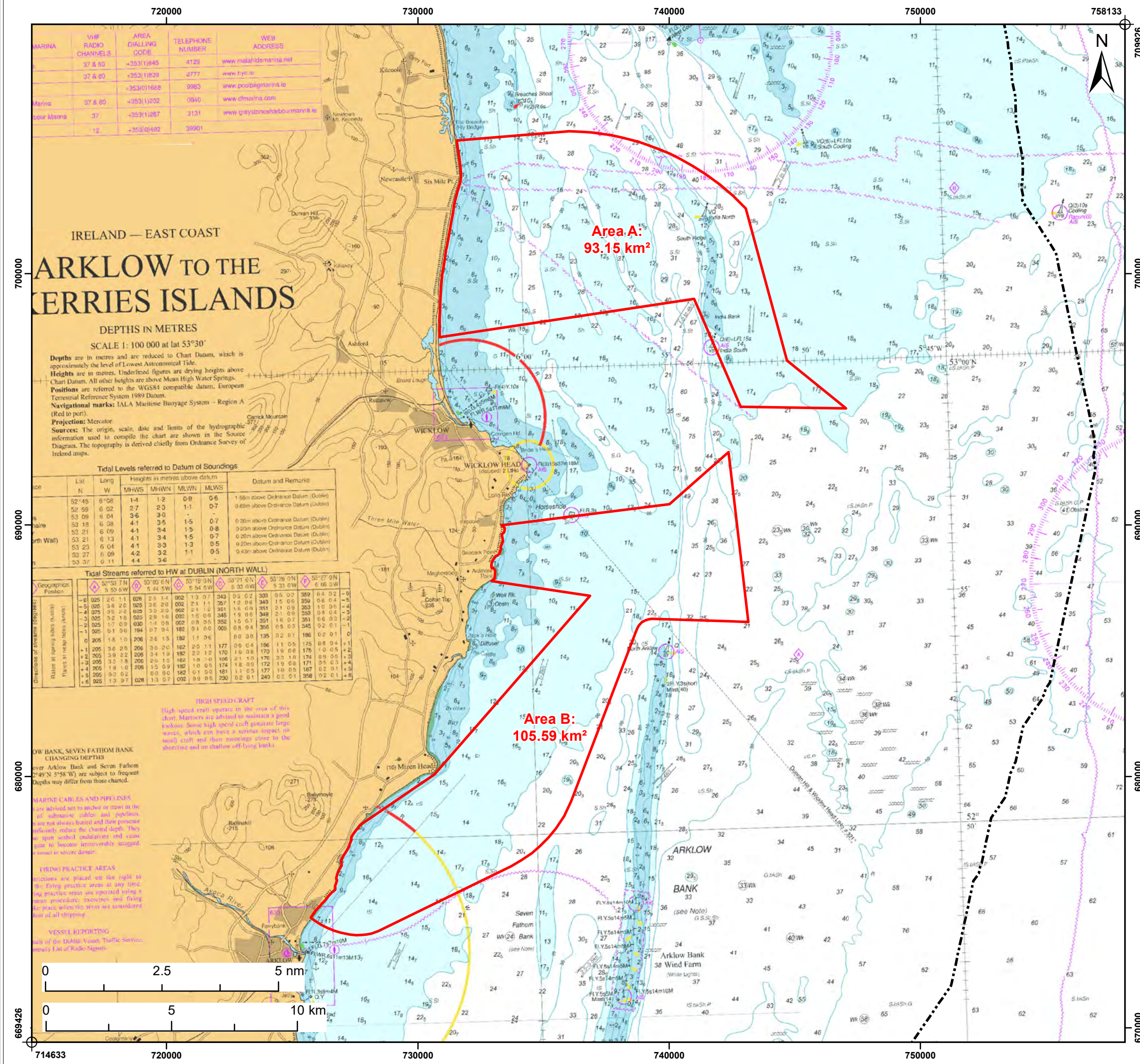
A full description of the proposed offshore surveys is provided in the Schedule of Works. The proposed surveys will comprise:

- Geophysical Surveys:
 - Multibeam echosounder (MBES)
 - Magnetometer
 - Sub-bottom profiling (SBP)
 - Side scan sonar (SSS)
- Marine Benthic Ecology Surveys:
 - Day Grab and/or Hamon Grab
 - Drop-down video (DDV) and photographic stills
- Geotechnical Surveys
 - Cone Penetration Testing (CPT)
 - Vibrocores

1.2 Aim of this Report

This report describes the current legislative framework, and provides the Minister for Housing, Local Government and Heritage (“the **Minister**”) with the necessary information to carry out screening for Environmental Impact Assessment (EIA) (“**EIA Screening**”) in accordance with the EIA Directive 2011/92/EU as revised by Directive 2014/52/EU (“**EIA Directive**”), if it is considered by the Minister that EIA Screening is required.

This Report was prepared by Alix Scullion and Paolo Pizzolla of Royal HaskoningDHV with specialist advice from experts at Royal HaskoningDHV. A Foreshore licence application was prepared by Royal HaskoningDHV with the assistance of Dr Louise Scally MCIEEM of Merc Consultants Ltd for the proposed windfarm area in early 2022 and the current application is based upon that application.



Legend:

- Wicklow Cable Area of Search
- Ireland 12nm Limit

Note: Area given in Irish Transverse Mercator (ITM)
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Client:	Project:
Wicklow Sea Wind Limited	Wicklow Offshore Wind Farm

Title:

Proposed Wicklow Cable Area of Search

Figure: 1 Drawing No: PC3392-RHD-ZZ-XX-DR-Z-0077

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2 Consideration of Applicable Law

2.1 EIA Directive 2011/92/EU as revised by Directive 2014/52/EU

The EIA Directive provides in Article 2(1) that:

*“Member States shall adopt all measures necessary to ensure that, before development consent is given, projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects (an environmental impact assessment). **Those projects are defined in Article 4.**”*

The projects defined in Article 4 of the EIA Directive are those projects listed in Annex I and Annex II of the EIA Directive. Accordingly, the EIA Screening requirements under the EIA Directive are applicable *only* to the projects *defined in Article 4* of the Directive, and not to *any* project likely to have a significant effect on the environment¹.

The Advocate General's Opinion in *Case C-275/09, Brussels Hoofdstedelijk Gewest*, states: ‘*In general, in order to determine whether a given activity should be made subject to an environmental impact assessment in accordance with the Directive, it is necessary to carry out a two-stage assessment. It must first be determined whether the activity concerned constitutes a ‘project’ within the meaning of Article 1(2) of the Directive. If it does, it is then necessary to ascertain whether that activity is one of those listed in Annexes I and II to the Directive. **An impact assessment must be carried out only in relation to the activities specifically indicated, which are listed exhaustively.***’ (C-156/07, Aiello & Others)

Article 4, paragraph 2, of the EIA Directive provides that projects listed in Annex I *shall* be subject to EIA.

Article 4, paragraph 2, of the EIA Directive provides that projects listed in Annex II *may* be subject to EIA, subject to (a) a case-by-case examination (screening), or (b) national thresholds or criteria, or both (a) and (b). Article 4, paragraph 3, provides that thresholds or criteria may be set to determine (a) when the EIA screening or EIA is not required, and (b) when projects shall be subject to EIA without screening.

Annex IIA describes the information to be provided by the developer with an application subject to EIA Screening. Annex III describes the criteria to be taken into account by the competent authority in carrying out EIA Screening.

Having regard to the Schedule of Works, none of the proposed activities correspond to a potentially relevant class of project in Annex I or Annex II.

2.2 Foreshore Act 1933, as amended

Section 13A(1)(a) of the 1933 Act provides that the Minister shall ensure that, before a decision on a relevant application is given, projects likely to have a significant effect on the environment by virtue, *inter alia*, of their

¹ *Case C-156/07, Aiello & Others*, ‘Article 2(1) of Directive 85/337 must be interpreted as not requiring that any project likely to have a significant effect on the environment be made subject to the environmental impact assessment provided for in that directive, but **only** those referred to in Annexes I and II to that directive, under the conditions set out in Article 4 thereof and subject to Articles 1(4) and (5) and 2(3) thereof.’ See also *Case C-215/06, Commission v Ireland*, and *Kavanagh v An Bord Pleanála and Highfield Solar [2020] IEHC 259 (O’Moore J)*.

nature, size or location, are made subject to an EIA, as defined in the 1933 Act. An application for a foreshore licence under section 3 of the 1933 Act is a “**relevant application**” as defined².

Just as in Article 2(1) of the EIA Directive, section 13A(1) of the 1933 Act makes it clear that the only projects that are subject to EIA requirements are those projects listed either in Part 1 or Part 2 of Schedule 5 of the Planning and Development Regulations 2001, as amended (“**Planning Regulations**”).

Having regard to the Schedule of Works, none of the proposed activities correspond to a potentially relevant class of project listed in Part 1 or Part 2 of Schedule 5 of the Planning and Development Regulations 2001. Section 13A(2A) further provides that, where the proposed development would be of a class referred to in section 13A(1)(b)(ii) (**Part 2, sub-threshold**) and is located on a “European site” as defined, or land designated under the Wildlife Acts, the Minister shall decide whether the development would or would not be likely to have significant effects on the environment.

Section 13A(2AB) provides that an application for development within a class listed in section 13A(1)(b)(ii)(I), (**Part 2, sub-threshold**) shall be accompanied by the information specified in Schedule 7A of the Planning Regulations³ and shall, *where relevant*, take account of the available results of other relevant assessments of the effects on the environment carried out pursuant to other Directives. Section 13A(2AB) transposes Article 4(4) of the EIA Directive.

Section 13A(2AC) provides that the application may include a description of the measures to avoid or prevent significant adverse effects on the environment. Section 13A(2AC) transposes Article 4(4) of the EIA Directive.

Section 13A(2B) provides that the Minister shall make a screening determination on the basis of the Schedule 7A information provided, taking into account the relevant selection criteria in Schedule 7 of the Planning Regulations⁴. Section 13A(2B) transposes Article 4, paragraph 5 of the EIA Directive.

Where the Minister makes a screening determination that the proposed development is likely to have a significant effect on the environment, Section 13A(2BB) provides that the Minister shall specify in the written determination, with reference to Schedule 7 of the Planning Regulations, the main reasons for that ‘screening in’ determination.

Where the Minister makes a screening determination that the development would not be likely to have a significant effect on the environment, Section 13A(2BB) provides that the Minister shall specify in the written determination, with reference to Schedule 7, the main reasons for that ‘screening out’ determination **and** any features to avoid or prevent significant effects on the environment. Section 13A(2BB) transposes Article 4(5) of the EIA Directive.

Section 13A(2BC) provides that the EIA Screening determination shall be made **within 90 days** of receipt of the relevant required information, and subsection (2BD) provides that the 90 days may be extended, giving reasons in writing and a new decision date, due to the exceptional nature, complexity, location or size of the project. Section 13A subsections (2BC) and (2BD) transpose Article 4(6) of the EIA Directive.

Section 13A(2C) provides that the Minister shall make the EIA screening determination available for public inspection, as well as electronically via the Department’s website.

² See section 13A(5) of the 1933 Act.

³ Schedule 7A of the Planning Regulations transposes Annex IIA of the EIA Directive

⁴ Schedule 7 of the Planning Regulations transposes Annex III of the EIA Directive

If the requirement for EIA is 'screened in', section 13A(1)(c) provides that an EIAR shall be submitted with the relevant application.

3 Environmental Assessment

3.1 Overview

An assessment of the potential impacts of the proposed surveys has been undertaken to support the Foreshore Licence Application for the Wicklow Project. The results of the following assessments have been taken into account, and the following reports submitted with the Foreshore Licence Application, which should be read together with this Report:

- Supporting Information for Screening for Appropriate Assessment (Royal HaskoningDHV, 2022b – document reference: UB1019-RHD-ZZ-XX-RP-Z-0009) (“the SISAA”)
- Natura Impact Statement Report (Royal HaskoningDHV, 2022c – document reference: UB1019-RHD-ZZ-XX-RP-Z-0010) (“the NIS”)
- Schedule of Works (Royal HaskoningDHV, 2022a – document reference: UB1019-RHD-ZZ-XX-RP-Z-0011)
- Annex IV Risk Assessment (Royal HaskoningDHV, 2022d – document reference: UB1019-RHD-ZZ-XX-RP-Z-0013)

The results of the Strategic Environmental Assessment (SEA) Environmental Report and NIS of the National Marine Planning Framework have also been taken into account⁵ in the preparation of this report.

3.2 Project Overview

Wicklow Sea Wind Limited wish to undertake surveys to assess the suitability of the area of interest for the installation of an offshore export cable corridor between an offshore wind farm (the Wicklow Project) and the coastline. The exact export cable corridor route has not yet been determined.

The cable AoS is defined in **Figure 1**. A summary of the proposed surveys is provided in **Section 1.1** and detailed more fully in the Schedule of Works (Royal HaskoningDHV, 2022a – document reference: UB1019-RHD-ZZ-XX-RP-Z-0011).

The exact timings and duration of surveys are yet to be determined but this foreshore licence application covers all seasons, regardless of the year. Estimated duration of surveys in total is expected to take approximately 24 months with each survey campaign lasting approximately 3 months. However, a foreshore licence is being sought for a five-year period, with the intention that all site investigations will take place within this time-frame.

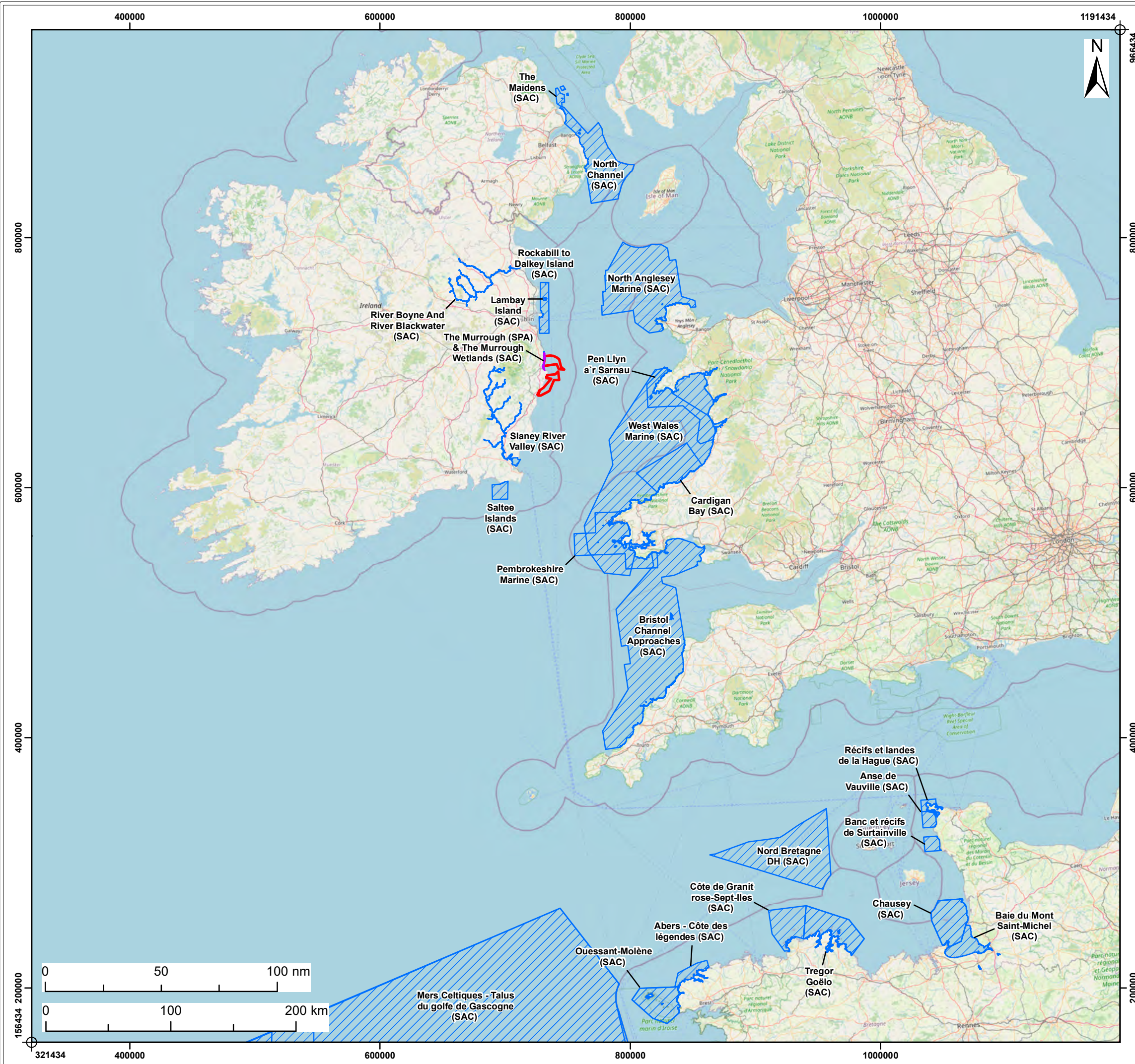
It is the intention for the geophysical surveys for the cable corridor to be undertaken following the geophysical surveys for the proposed Wicklow foreshore array area, which will last approximately 3 months. It is key that the geophysical survey is completed first as it will inform the survey design for the ground intrusive surveys (benthic surveys and geotechnical surveys). Following the geophysical surveys, the benthic ecology survey will commence lasting approximately 3 months. The geotechnical survey will last approximately 3 months.

⁵ <https://www.gov.ie/en/consultation/bd098b-public-consultation-on-the-draft-national-marine-planning-framework/#documents>

3.3 Designated Sites

There are a number of designated sites in proximity to the cable AoS which have been identified in the SISAA. Further information on the designated sites in proximity to the cable AoS with the potential to be affected by the proposed surveys are included within the SISAA and shown in **Figure 2**.

The NIS concluded that the proposed surveys either alone or in-combination with other plans or projects would not cause an adverse effect on integrity of any Natura 2000 site.



Legend:

- Wicklow Cable Area of Search
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)

Data Sources: © National Parks and Wildlife Service, 2022. © JNCC, 2022.
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Basemap: © OpenStreetMap (and) contributors, CC-BY-SA. Sources: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors.

Client: Wicklow Sea Wind Limited	Project: Wicklow Offshore Wind Farm
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Title:
 European Sites Considered in the Screening Exercise for Wicklow Cable Area of Search

Figure: 2 Drawing No: PC3392-RHD-ZZ-XX-DR-Z-0078

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3.4 Marine Physical Processes

The proposed surveys will lead to a temporary increase in suspended sediment concentrations during the ground intrusive surveys (benthic ecology and geotechnical surveys). However, due to the short-term temporary nature of the surveys, and the small footprint of seabed where the disturbance will occur, suspended sediment concentrations are expected to return to background levels due to dispersal through tidal currents. Although there will be a temporary increase in suspended sediment concentrations, elevations are still expected to be lower than concentrations that would occur naturally in the water column during storm conditions. Therefore, no significant impacts are expected to the sedimentary regime due to the proposed surveys.

The proposed surveys will lead to small indents in the seabed where the grab samples were collected, however, they will be small scale and localised and will become infilled through natural sedimentary processes. Therefore, no impacts to bathymetry are expected.

In relation to the wave and tidal regime, there will be no permanent structures on the seabed and due to the small scale and temporary nature of monitoring and survey equipment that would have contact with seabed (for example seabed mounted frames for current profilers) no impacts are expected to the wave and tidal regime.

3.5 Benthic Ecology

The cable AoS has a water depth range of approximately 0m to 61m and is characterised by linear sandbanks. Based on data obtained from the European Nature Information System (EUNIS) habitat classification system, the sediment in the survey area is predominantly coarse substrate with sand and mixed sediment at the south and east of the survey area. **Figure 3** shows the predominant habitat types in the cable AoS.

EMODnet seabed habitat data shows that the cable AoS is characterised by the following habitats:

- **Circalittoral coarse sediment:** this habitat is dominated by coarse sands, gravel and shingle and can be found in tidal channels of marine inlets, along exposed coasts and offshore. Characteristic species of this habitat are polychaetes, crustacea and bivalves (EMODnet, 2022).
- **Deep circalittoral coarse sediment:** this habitat is dominated by coarse sands and gravel or shells and may cover large areas of the offshore continental shelf. Habitats are quite diverse compared to shallower versions of this habitat and generally include infaunal polychaete and bivalve species. Animal communities supported by this habitat include *Modiolus modiolis* larvae and mussels (EMODnet, 2022).
- **Circalittoral fine sand:** this habitat is dominated by clean, fine sands covering areas of the open coast, tide-swept channels in depths over 20m. It can commonly be found in offshore benthic areas and supports a diverse range of echinoderms, polychaetes and bivalves (EMODnet, 2022).
- **Circalittoral muddy sand:** this habitat typically has a silt content of 5% to 20%. It is found at depths over 20m and supports a rich infaunal community of organisms including polychaetes, bivalves and echinoderms such as *Amphiura* spp. (EMODnet, 2022).
- **Circalittoral sandy mud:** this habitat typically has over 20% silt/clay content, found in depths over 10m. Usually found in deeper bays and less exposed locations with weak tidal streams. Characteristic species of this habitat include sea pens, brittlestars, tube building polychaetes and deposit feeding bivalves such as *Mysella bidentata* (EMODnet, 2022).
- **Atlantic and Mediterranean high energy infralittoral rock:** this habitat is exposed to extremely exposed wave action or strong tidal streams. The rock supports a community of kelp *Laminaria*

hyperborean with foliose seaweeds and animals. The sublittoral fringe is characterised by dabberlocks *Alaria esculenta* (EMODnet, 2022).

- **Circalittoral rock and other hard substrata:** circalittoral rock can be split into two sub-zones: the upper circalittoral and lower circalittoral. The habitat can then be characterised in three energy levels: high, moderate and low energy circalittoral rock. The criterion for categorisation is dependent on the biotopes found within the specific area, and therefore the habitat complexity level. It is common for the habitats to host a wide variety of organisms, with circalittoral habitats being animal dominated communities (EMODnet, 2022).
- **Infralittoral fine sand:** this habitat is composed of clean sands in shallow water, typically found in open waters or tide swept channels. Fauna found in this habitat are resilient, robust organisms including amphipods and polychaetes such as *Nephtys cirrosa*. Seaweed is rarely found in these habitats (EMODnet, 2022).
- **Infralittoral muddy sand:** this habitat is composed of non-cohesive muddy sand with 5% - 20% silt/clay content. Found in extreme lower shores and stable circalittoral ones at a depth of 15-20m. This habitat hosts animal dominated communities including polychaetes, bivalves and the urchin *Echinocardium cordatum* (EMODnet, 2022).

The proposed surveys have the potential for effect on benthic habitats through the following:

- Physical damage, disturbance and sediment removal;
- Increased suspended sediments and sediment re-deposition leading to smothering;
- Accidental pollution event leading to toxic contamination; and
- Introduction of invasive species from the vessels hull leading to non-toxic contamination.

The proposed surveys are short term and temporary meaning any indirect impacts will not occur over a long period of time and will cease once the surveys have stopped. Direct impacts from disturbance are limited to the benthic grab samples and CPT and vibrocore sample locations, therefore, the spatial scale of direct disturbance is relatively small in the context of the wider offshore area where similar habitats are present. Indirect effects from suspended sediment increase and re-deposition are also spatially limited. Any smothering would be a very small thin layer within the vicinity of the sample locations due to the small volumes of sediment removed during sampling. Even for the construction of offshore wind farms, the majority of disturbed sand will typically settle within short distances, for example, within 500m with very small levels of smothering (Ørsted, 2018). Therefore, no significant impacts are expected in relation to benthic ecology due to physical disturbance and removal, increased suspended sediment and re-deposition caused by the proposed surveys.

The intertidal surveys partially overlap the following SACs:

- The Murrough Wetlands SAC
- Magherabeg Dunes SAC
- Buckroneys-Brittias Dunes and Fen SAC

The only benthic features that could potentially be located within the intertidal are 'perennial vegetation of stony banks' and 'annual vegetation of drift lines'. No samples will be removed from either rocky or sediment shores and the intertidal surveys will be of short duration (up to 1 day per survey location). Any small areas of sediment dug-over in the intertidal area will be quickly infilled following cessation of the disturbance. Intertidal archaeological surveys will avoid any archaeological sensitive areas and will be undertaken by a qualified archaeologist.

During the proposed surveys, there is the potential for pollution from spills or leaks of fuel and oil. The risk of this arising can be minimised by following standard pollution prevention requirements, which are detailed

further in **Section 3.13**. As such, it is considered that there will be no likely impacts to benthic ecology in relation to accidental pollution events.

There is also the potential for the introduction of invasive non-native species (INNS) during the proposed surveys via survey vessels which could impact benthic ecology receptors. The risk of spreading INNS will be reduced by employing biosecurity measures in accordance with the following requirements:

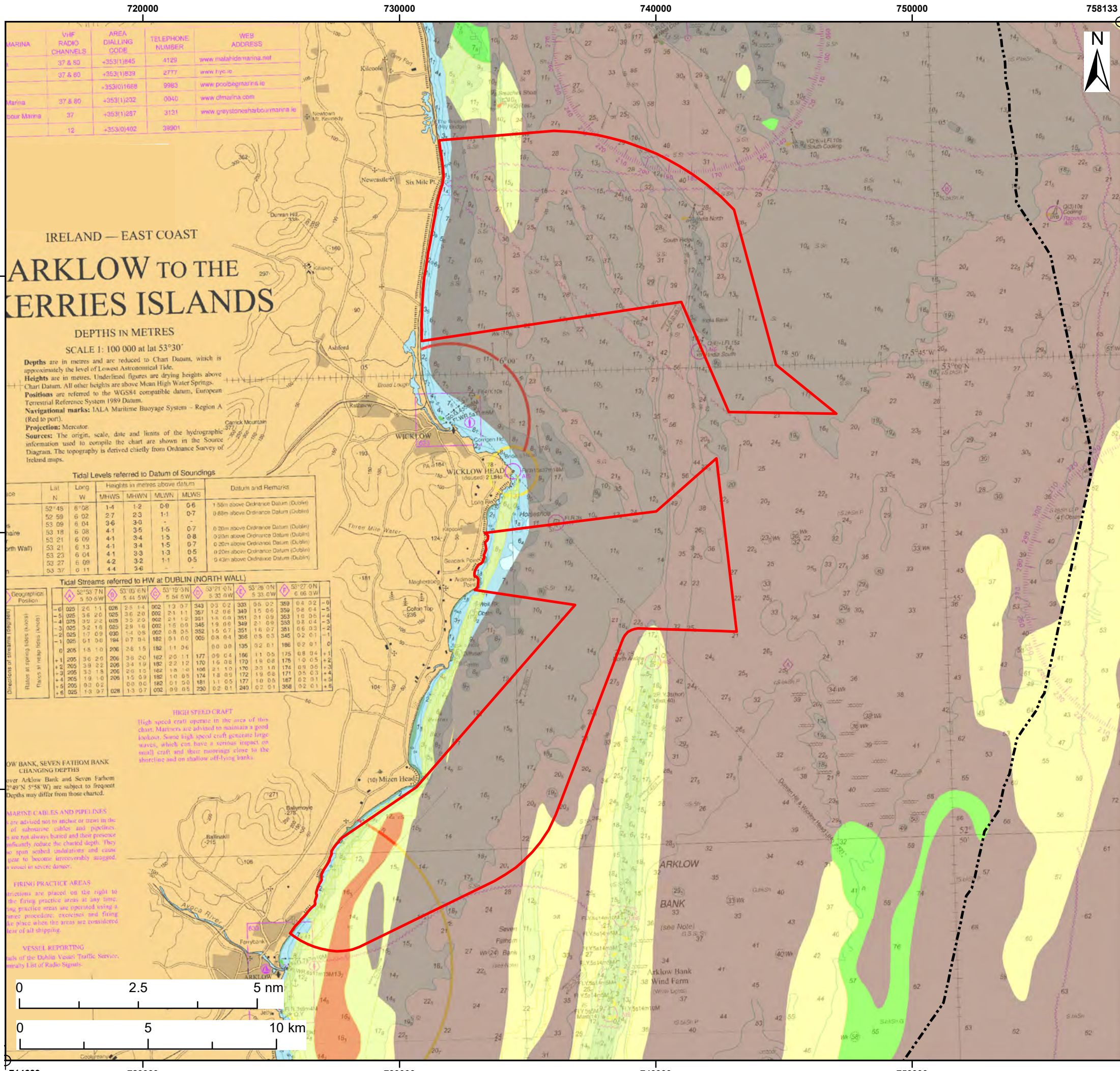
- International Convention for the Prevention of Pollution from Ships (MARPOL). The MARPOL sets out appropriate vessel maintenance; and
- The International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention), which provide global regulations to control the transfer of potentially invasive species.

In addition, the following will be adhered to:

- The European Communities (Environmental Liability) Regulations 2008, which set out a polluter pays principle where the operators who cause a risk of significant damage or cause significant damage to land, water or biodiversity will have the responsibility to prevent damage occurring, or if the damage does occur will have the duty to reinstate the environment to the original condition.

With compliance with these requirements, it is not expected that invasive species will be introduced, therefore, there are no likely impacts expected to benthic ecology in relation to INNS.

Overall due to the scale and nature of the proposed surveys, it is not expected there will be an impact to benthic ecology receptors. Additionally, the SISAA considered impacts to sites designated for benthic ecology receptors, concluding there would be no likely significant effect on the designated benthic features of SACs.



Legend:
 [Red outline] Wicklow Cable Area of Search
 [Dashed line] Ireland 12nm Limit

EUNIS Substrate Type
 [Brown] Coarse Substrate
 [Green] Mixed Sediment
 [Orange] Muddy Sand
 [Yellow] Sand

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Client: Wicklow Sea Wind Limited
Project: Wicklow Offshore Wind Farm

Title: Benthic Environment

Figure: 3 **Drawing No:** PC3392-RHD-ZZ-XX-DR-Z-0079

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3.6 Fish and Shellfish Ecology

Data from Coull *et al.* (1998), the Marine Institute (2009) and Ellis *et al.* (2010) shows there are a number of species with spawning and nursery grounds overlapping the cable AoS, or in the surrounding area, none of which are recorded as high intensity. The spawning and nursery grounds overlapping or close to the cable AoS are listed below and shown on **Figure 4 a-f**:

- Haddock *Melanogrammus aeglefinus* spawning and nursery grounds;
- Whiting *Merlangius merlangus* spawning and nursery grounds;
- Lemon Sole *Microstomus kitt* spawning and nursery grounds;
- Cod *Gadus morhua* spawning and nursery grounds;
- Mackerel *Scomber scombrus* spawning and nursery grounds;
- Sandeel *Ammodytes tobianus* spawning and nursery grounds;
- Sole *Solea solea* spawning grounds;
- Plaice *Pleuronectes platessa* spawning and nursery grounds;
- Anglerfish *Lophius piscatorius* nursery grounds;
- Ling *Molva molva* spawning grounds;
- Sprat *Sprattus sprattus* spawning grounds;
- Herring *Clupea harengus* nursery grounds;
- Spotted ray *Raja montagui* nursery grounds;
- Thornback ray *Raja clavata* nursery grounds;
- Tope shark *Galeorhinus galeus* nursery grounds; and
- Horse mackerel *Trachurus trachurus* nursery grounds.

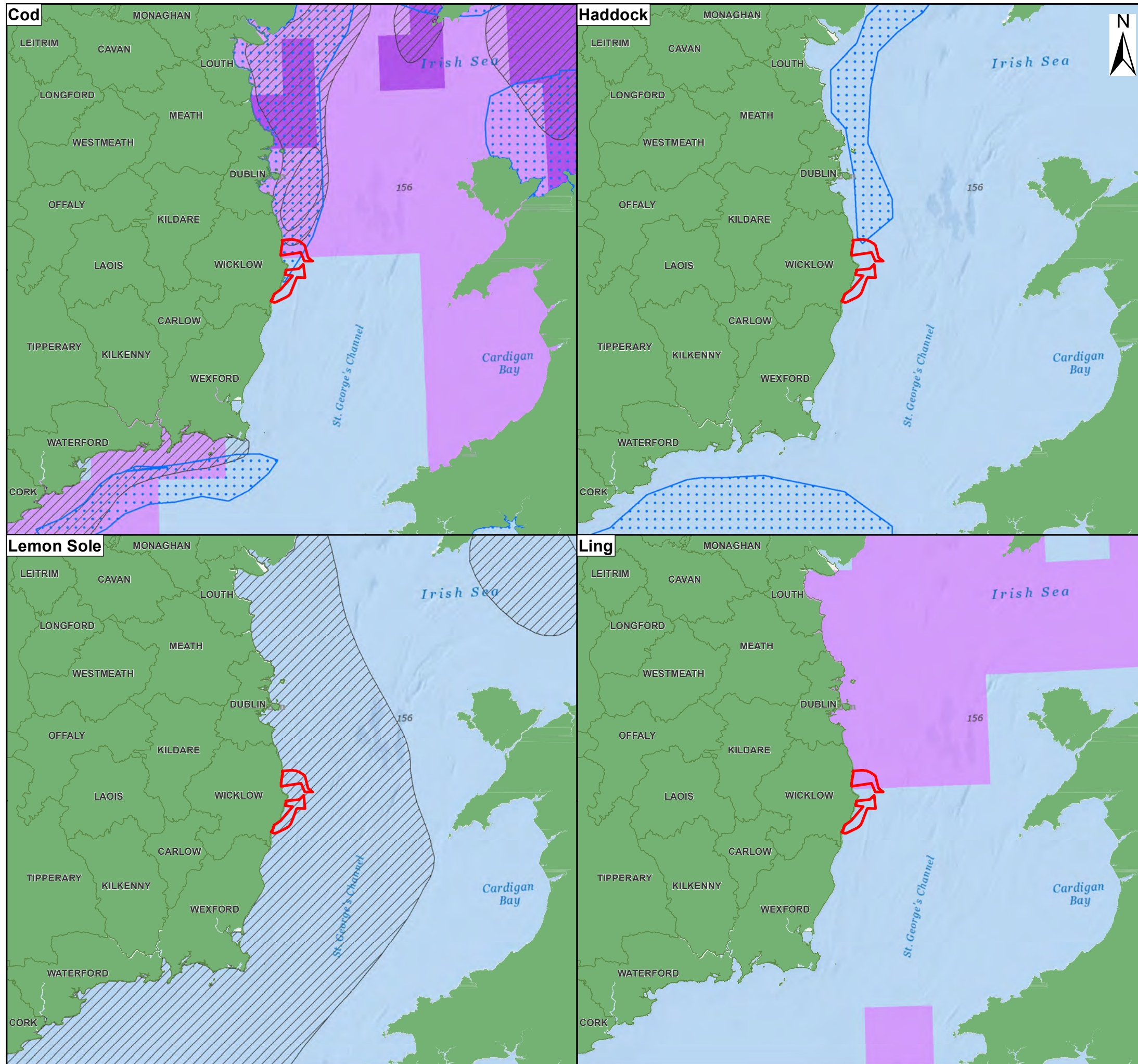
There are a number of rivers on the south and east coast of Ireland which have been designated as SACs for Annex II migratory fish. Although these SACs are not marine, the migratory fish for which they were designated have a marine phase of the lifecycle. These species rely on the sea to migrate to feeding grounds before returning to rivers to spawn.

The following lists the species from SACs in Ireland and the times of year of their migrations:

- Sea lamprey *Petromyzon marinus* – late April to early June;
- River lamprey *Lampetra fluviatilis* – September to June;
- Twaité shad *Alosa fallax* – year-round and migrate into rivers from April-July; and
- Atlantic salmon *Salmo salar* – May to June and autumn months.

The closest SAC designated for the species outlined above to the cable AoS is the Slaney River Valley SAC, which is approximately 16km from the cable AoS. Note that brook lamprey does not migrate to the sea and therefore has not been considered in this environmental assessment exercise.

Basking shark *Cetorhinus maximus* is a 'protected wild animal' under Section 23(2)(a) of the Wildlife Act 1976, entitled the "Wildlife Act 1976 (Protection of Wild Animals) Regulations 2022." There are currently no population estimates for basking sharks in Ireland, largely because no measurable data sets exist to indicate population expansion or contraction trends. There is also no research on the behavioural/feeding habits of basking sharks within Irish coastal waters, their spatial and temporal distributions or the major factors influencing these practices (Speedie, 2003). A public sightings scheme was established in Ireland (1993) reported a total of 425 individual basking sharks in one year of observation, encompassing all Irish coasts (Berrow & Heardman, 1994). Data on distribution from MarLIN (Wilding *et al.*, 2020) has records for basking shark all around the Irish coast, therefore there is potential for them to be present in the cable AoS.



Legend:

- Wicklow Cable Area of Search

Spawning Grounds

- Marine Institute, 2009
- Coull *et al.*, 1998

Ellis *et al.*, 2010

- High Intensity
- Low Intensity

0 25 50 nm
0 50 100 km

Data Sources: © Marine Institute, 2009. Coull *et al.*, 1998. © Ellis *et al.*, 2010. © OSI, 2021
Basemap: Sources: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors.

Client:	Project:
Wicklow Sea Wind Limited	Wicklow Offshore Wind Farm

Title:
 Cod, Haddock, Lemon Sole and Ling Spawning Grounds

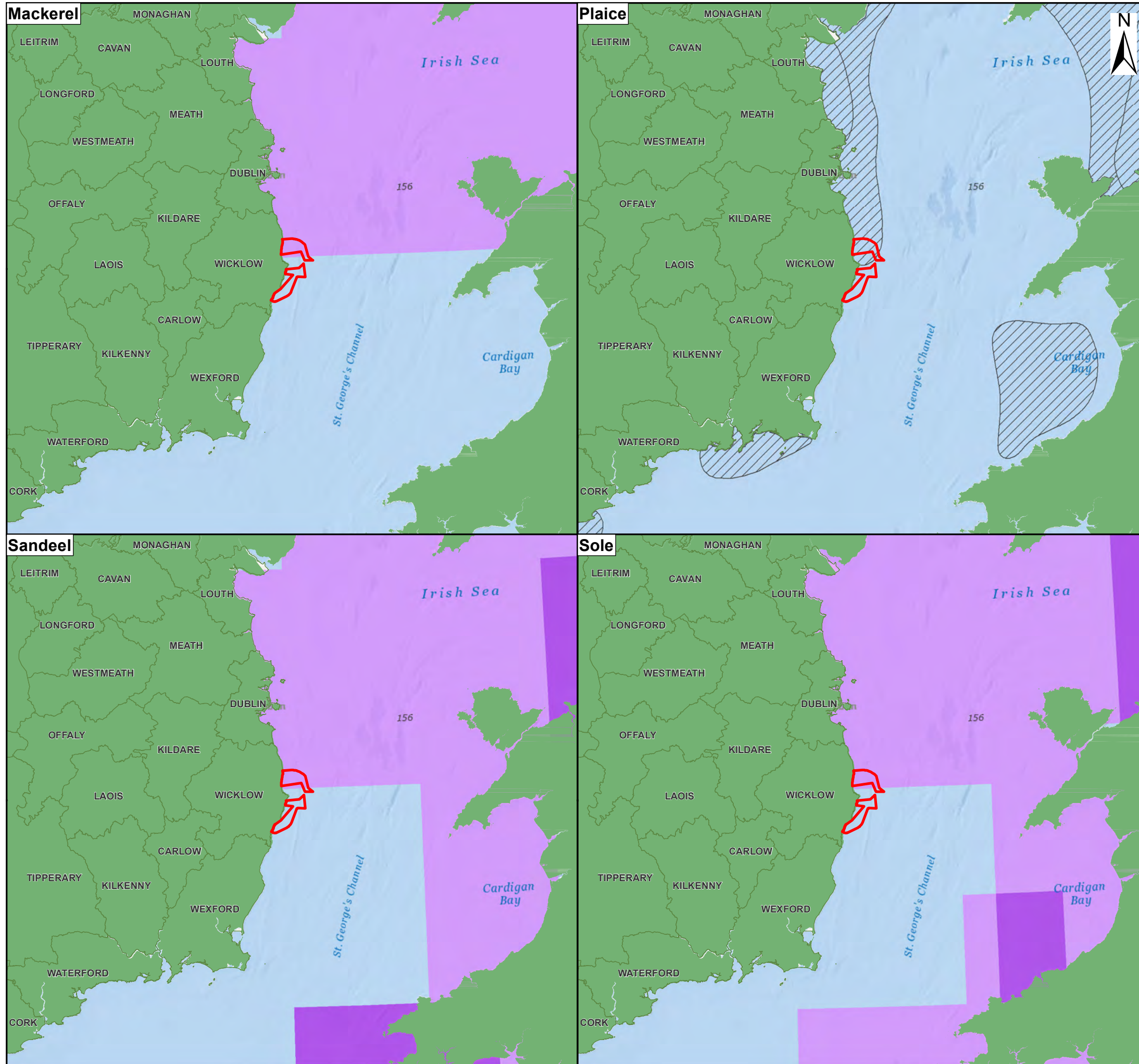
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Legend:

Wicklow Cable Area of Search

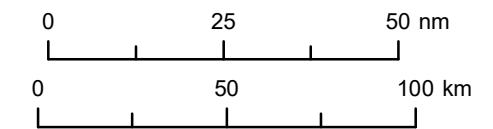
Spawning Grounds

Coull *et al.*, 1998

Ellis *et al.*, 2010

High Intensity

Low Intensity



Data Sources: Coull *et al.*, 1998. © Ellis *et al.*, 2010. © OSI, 2021.
Basemap: Sources: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors.

Client:	Project:
Wicklow Sea Wind Limited	Wicklow Offshore Wind Farm

Title:
Mackerel, Plaice, Sandeel and Sole Spawning Grounds

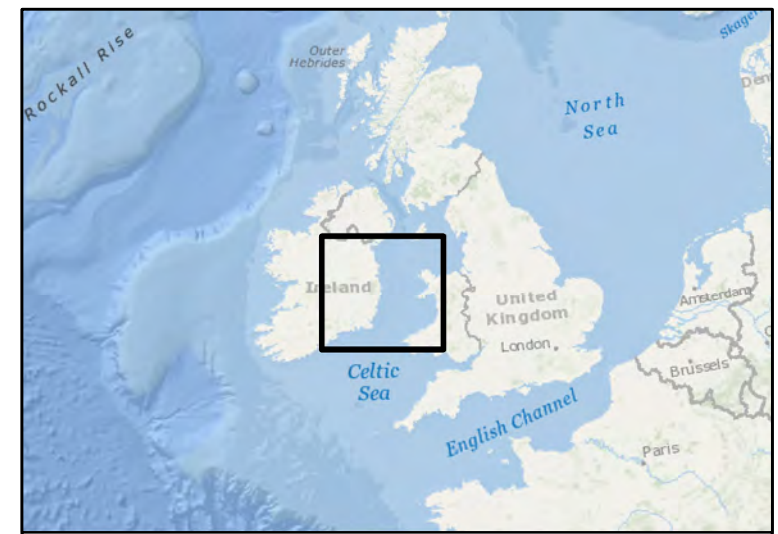
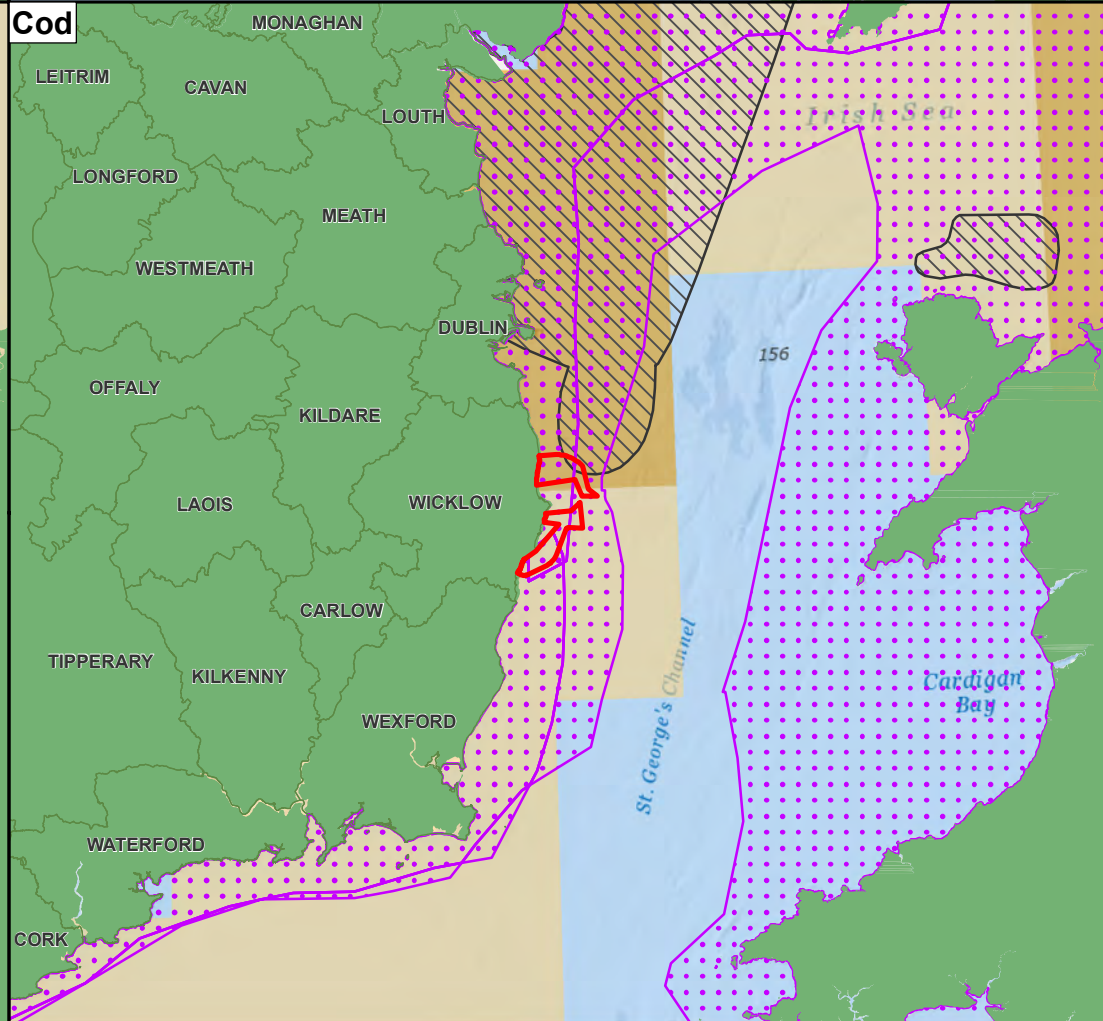
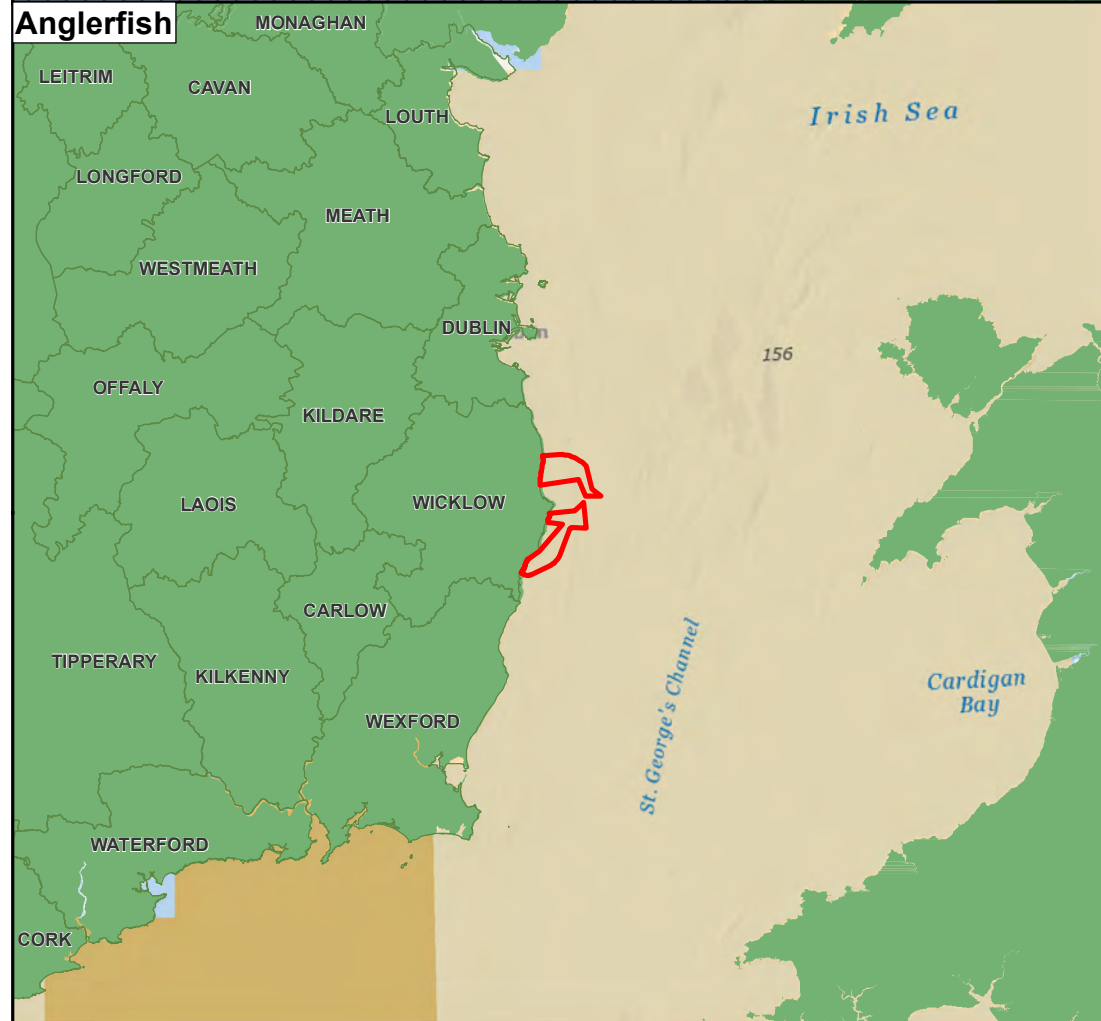
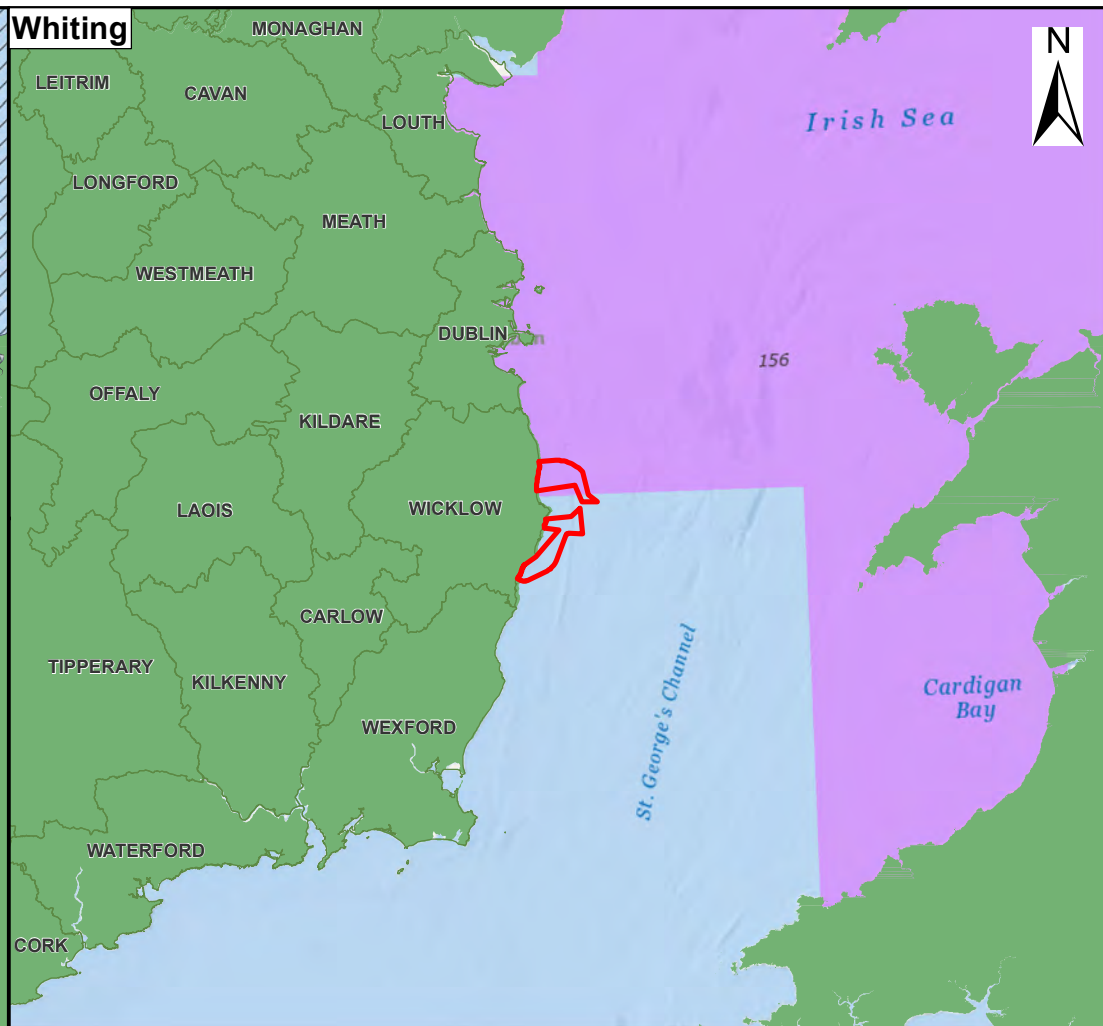
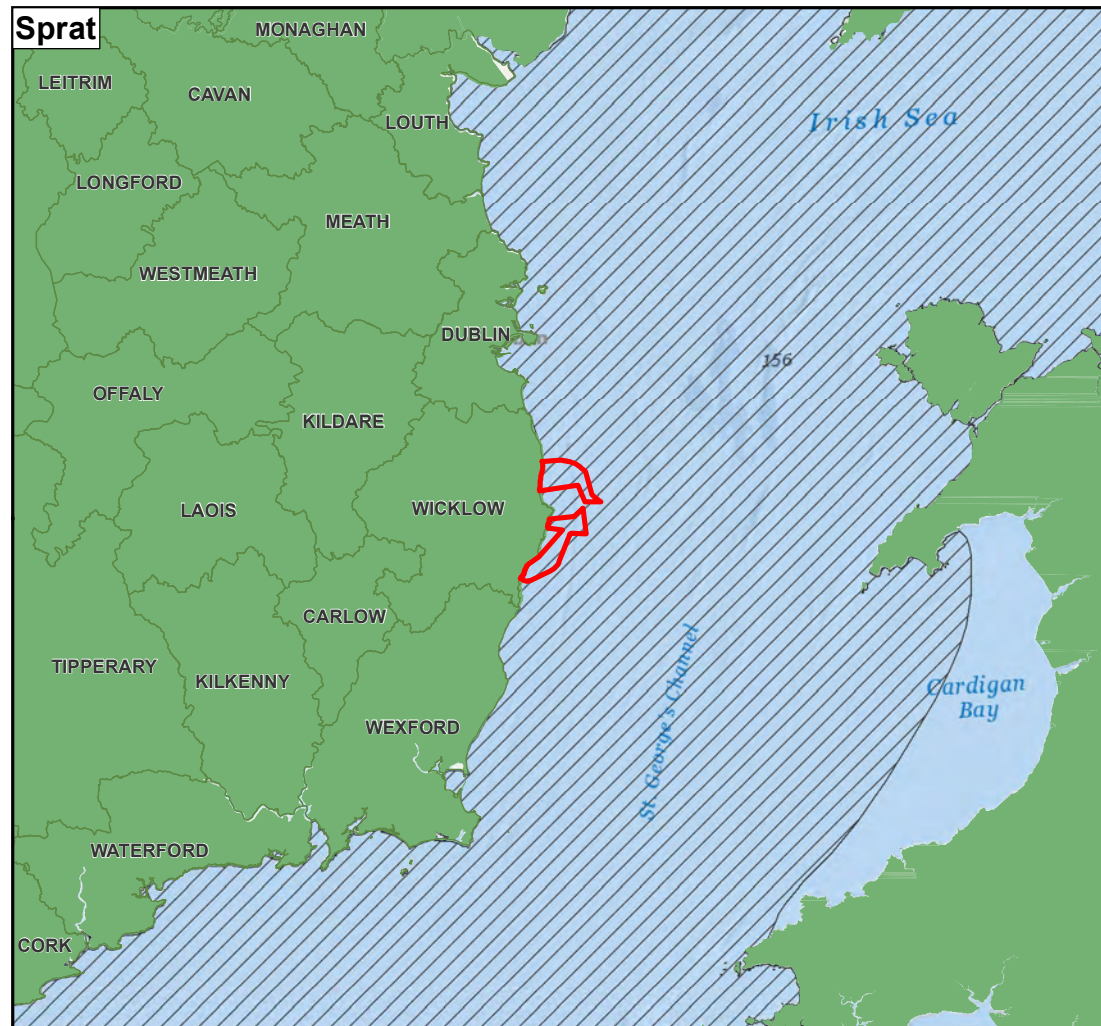
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Legend:

- Wicklow Cable Area of Search
- High Intensity
- Low Intensity

Spawning Grounds

- Coull *et al.*, 1998

Ellis *et al.*, 2010

- High Intensity
- Low Intensity

Nursery Grounds

- Marine Institute, 2009
- Coull *et al.*, 1998

0 25 50 nm

0 50 100 km

Data Sources: © Marine Institute, 2009. Coull *et al.*, 1998. © Ellis *et al.*, 2010. © OSI, 2021
Basemap: Sources: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors.

Client: Wicklow Sea Wind Limited	Project: Wicklow Offshore Wind Farm
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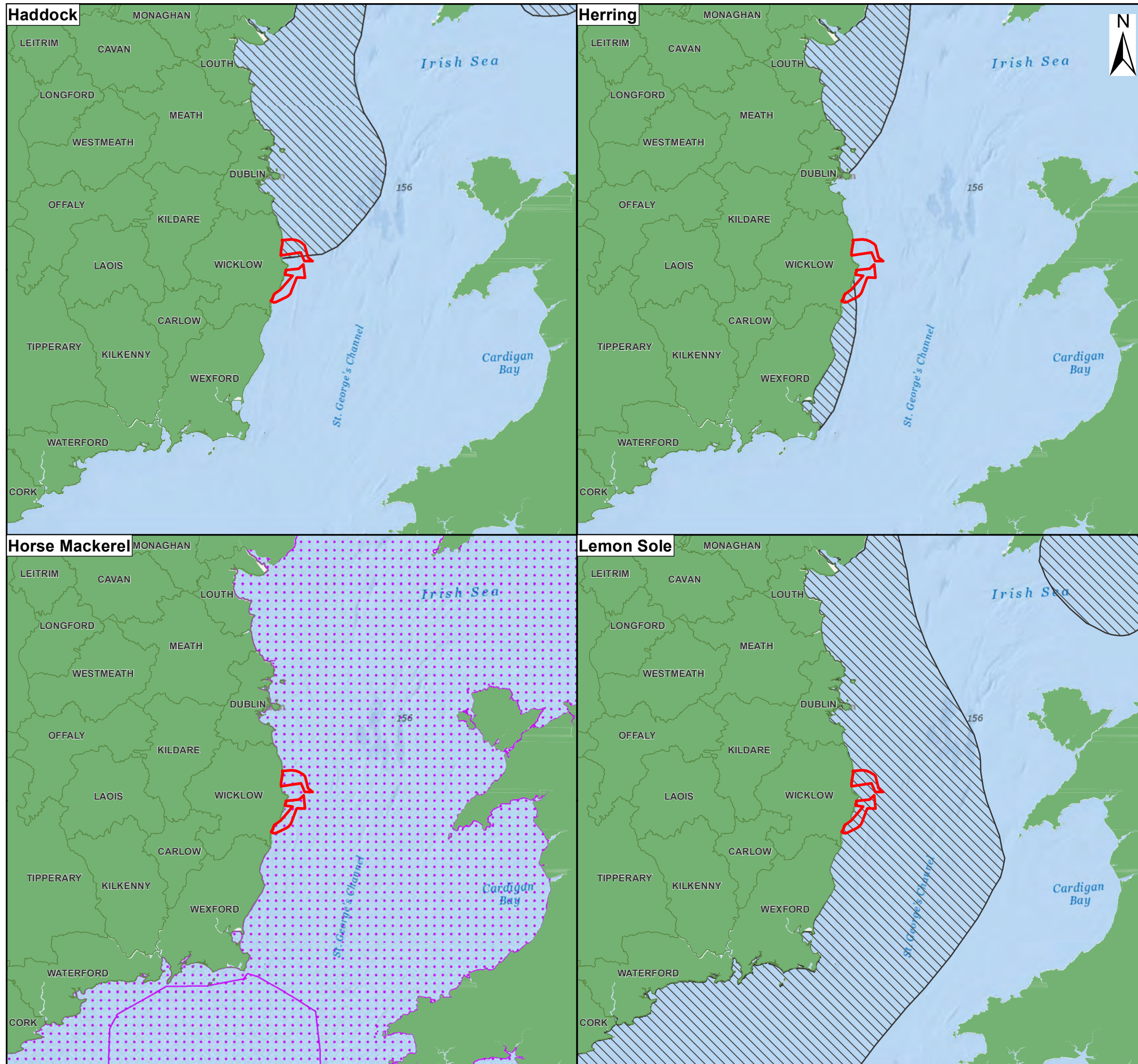
Title:
Sprat and Whiting Spawning Grounds and Anglerfish and Cod Nursery Grounds

Figure: 4c Drawing No: PC3392-RHD-ZZ-XX-DR-Z-0082

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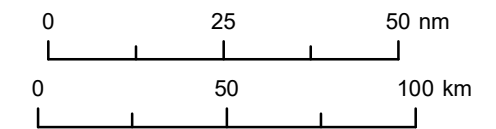
Legend:

Wicklow Cable Area of Search

Nursery Grounds

Marine Institute, 2009

Coull et al., 1998



Data Sources: © Marine Institute, 2009. Coull et al., 1998. © OSI, 2021.
 Basemap: Sources: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors.

Client:	Project:
Wicklow Sea Wind Limited	Wicklow Offshore Wind Farm

Title:
 Haddock, Herring, Horse Mackerel and Lemon Sole Nursery Grounds

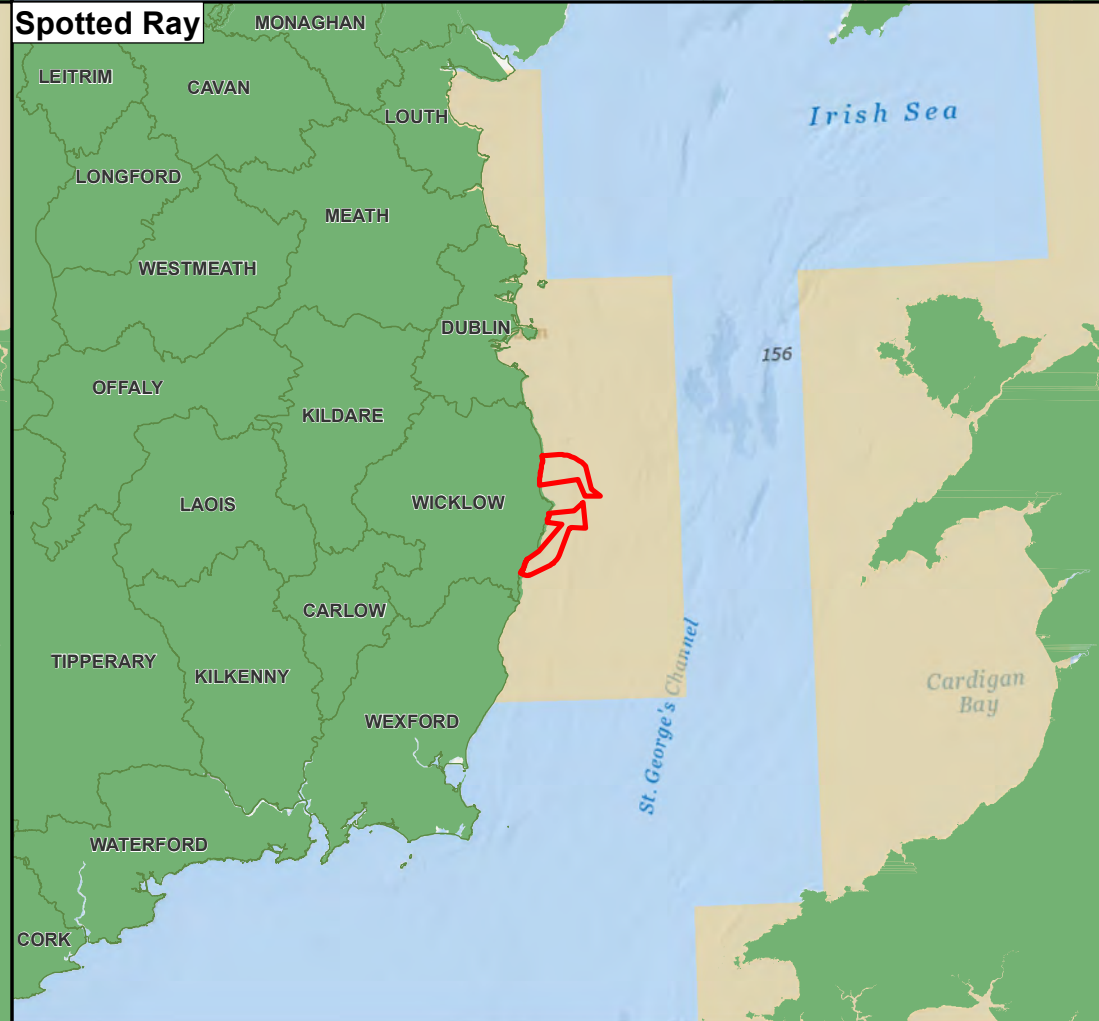
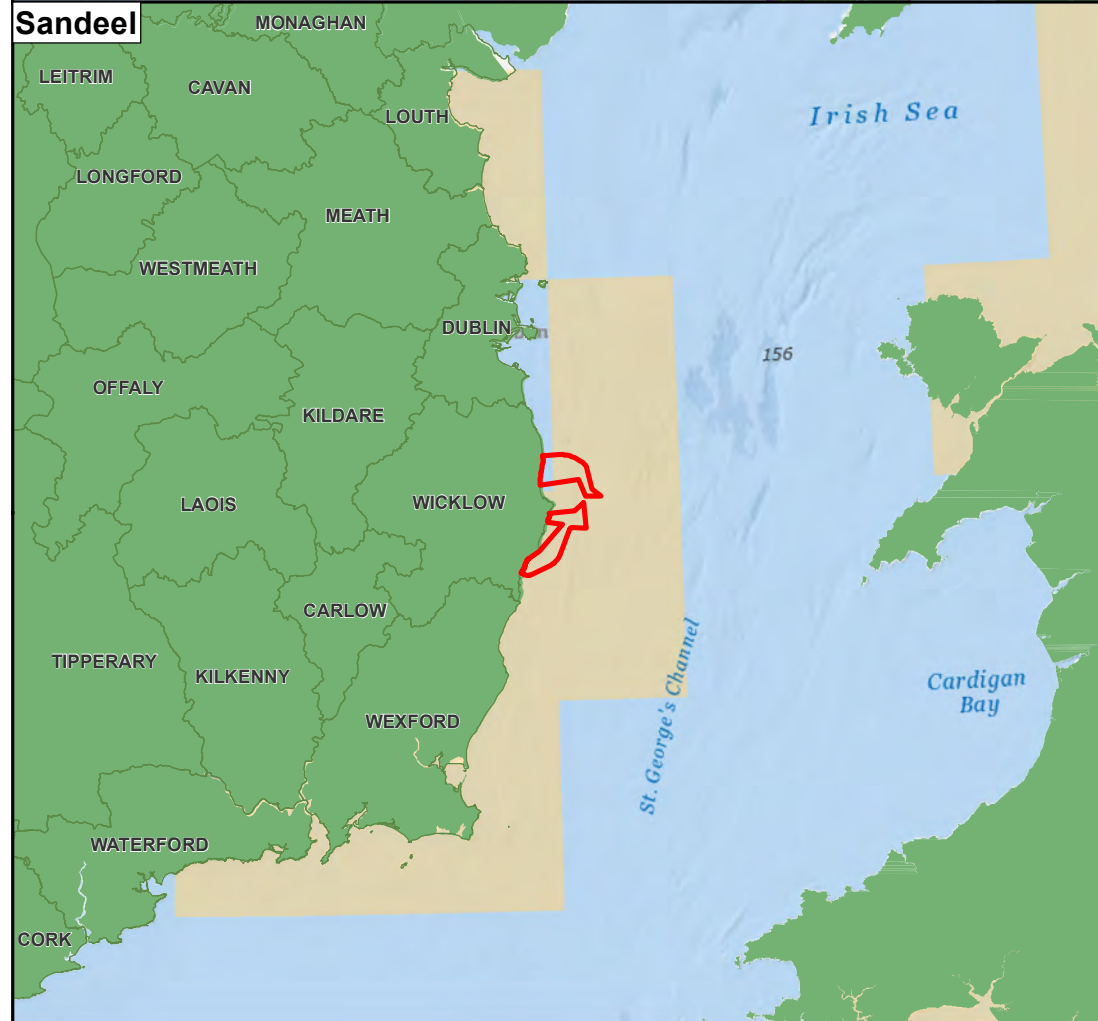
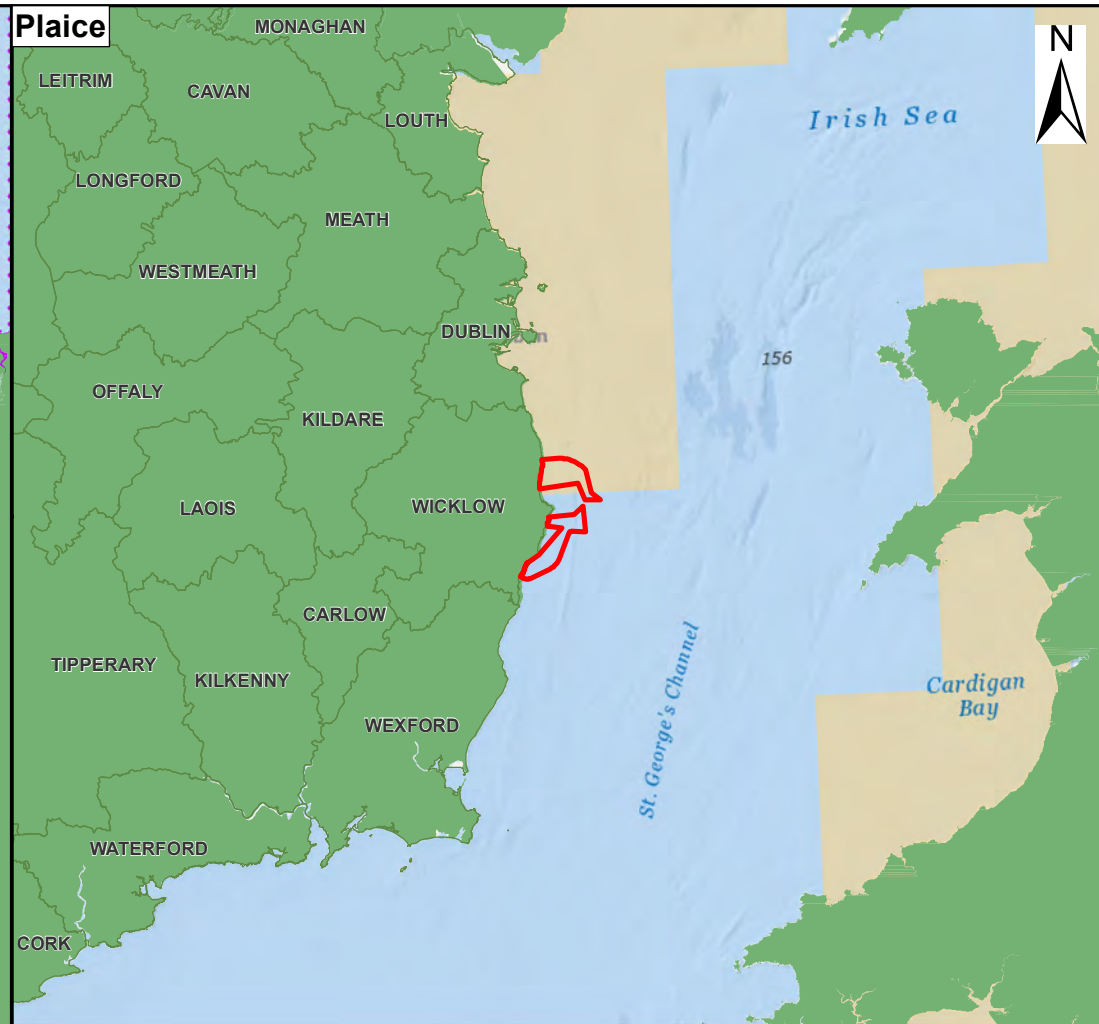
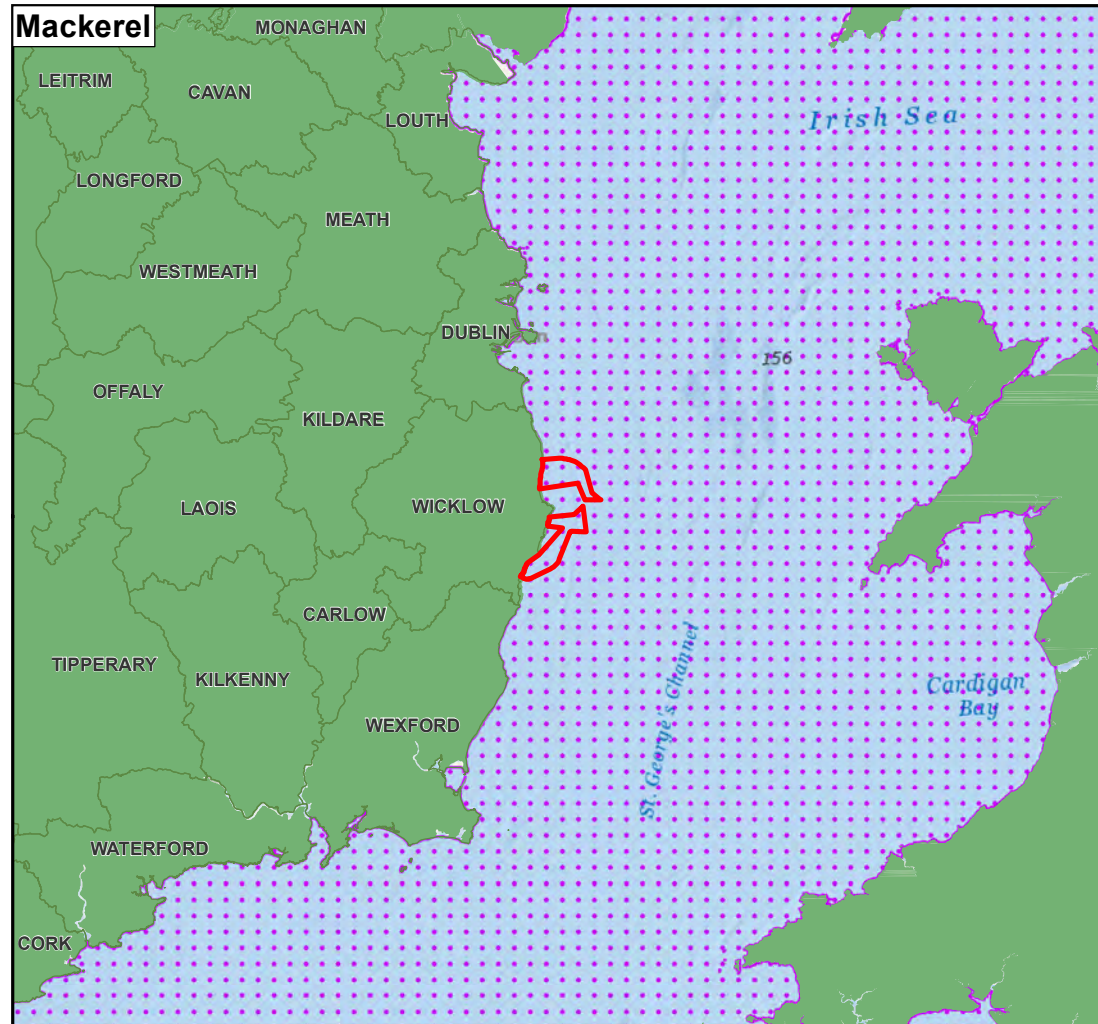
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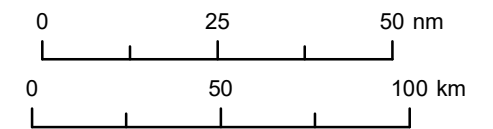
Co-ordinate system: IREN95 Irish Transverse Mercator



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- Legend:
- Wicklow Cable Area of Search
 - Marine Institute, 2009
 - Ellis *et al.*, 2010**
 - High Intensity
 - Low Intensity



Data Sources: © Marine Institute, 2009. Ellis *et al.*, 2010. © OSI, 2021.
 Basemap: Sources: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors.

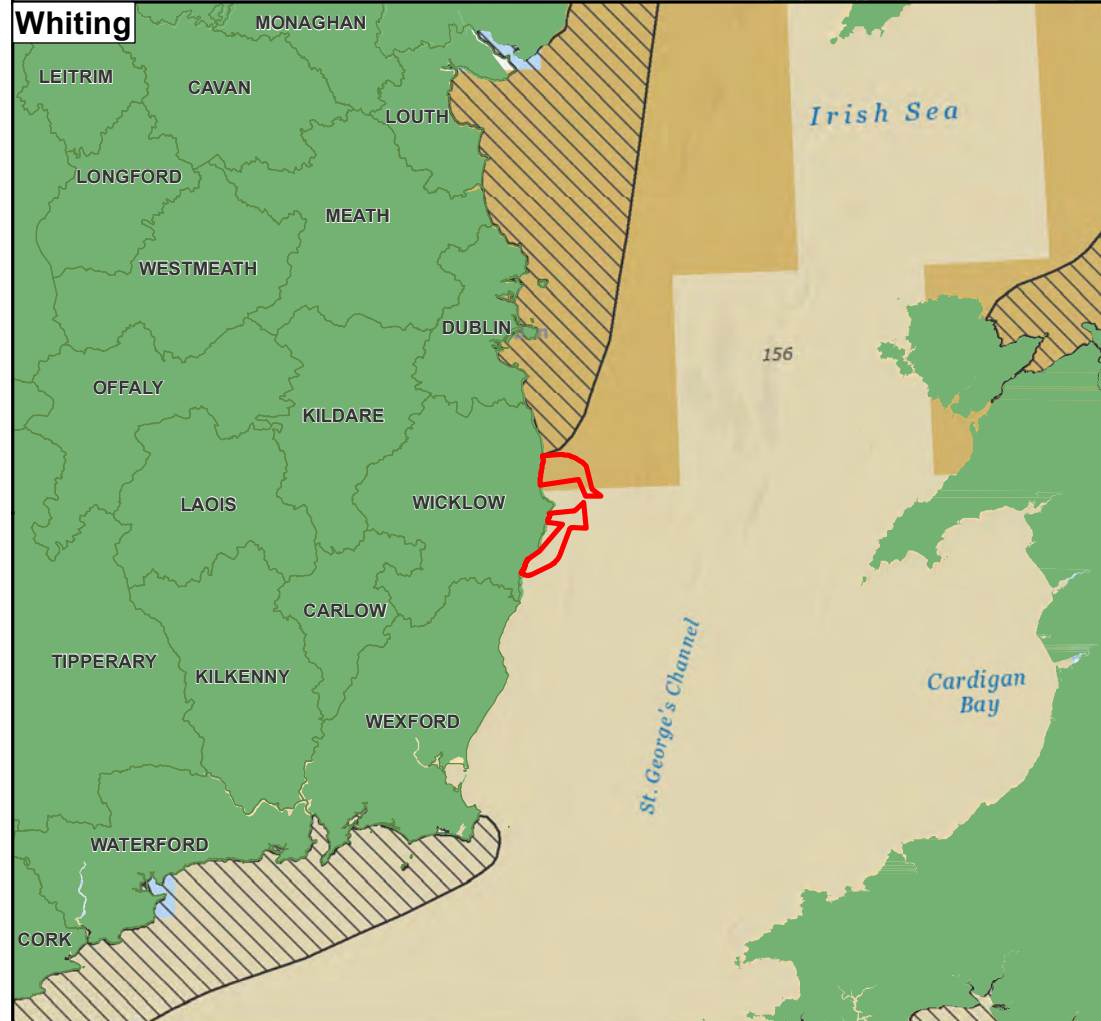
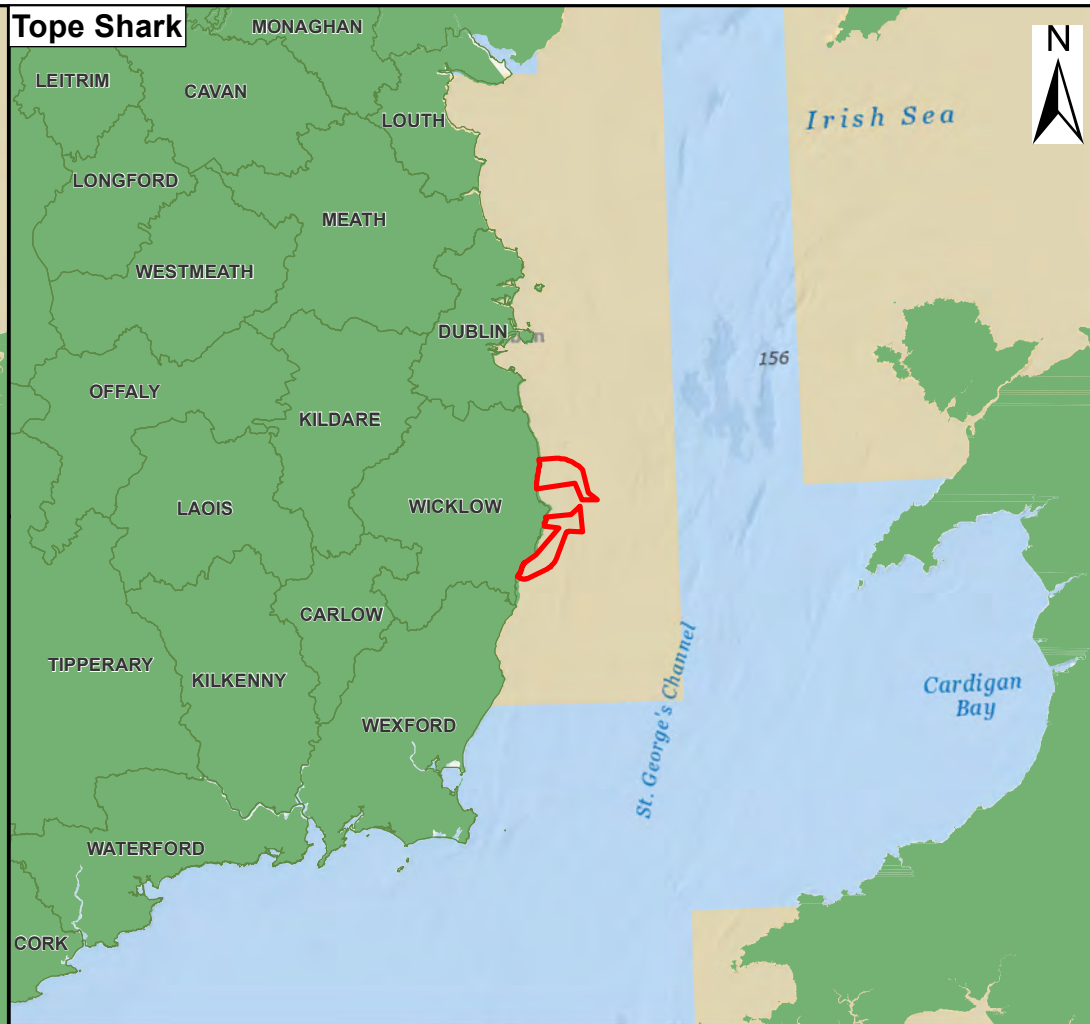
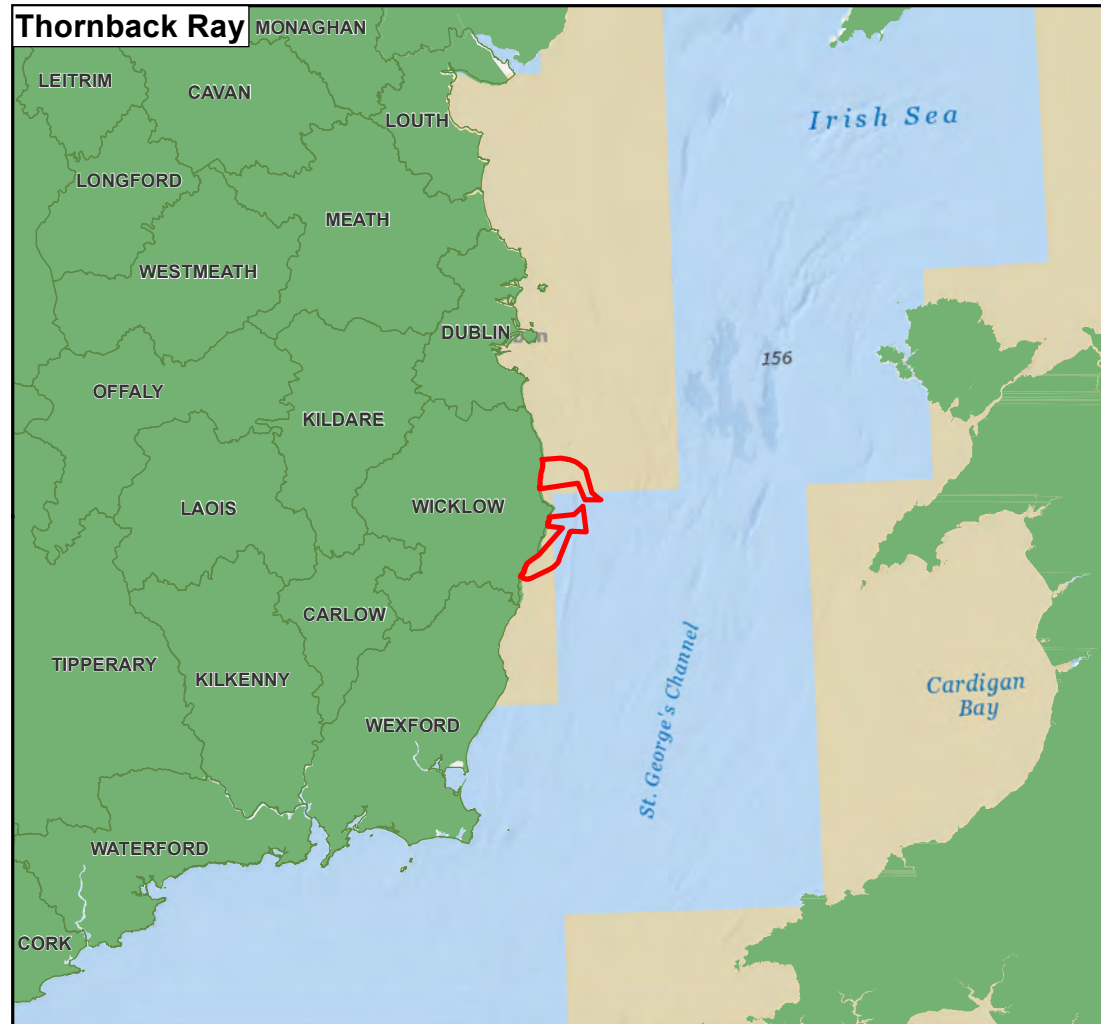
Client: Wicklow Sea Wind Limited	Project: Wicklow Offshore Wind Farm
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Title:
Mackerel, Plaice, Sandeel and Spotted Ray Nursery Grounds

Figure:	4e	Drawing No:	PC3392-RHD-ZZ-XX-DR-Z-0084		
Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Legend:

- Wicklow Cable Area of Search

Nursery Grounds

- Coull *et al.*, 1998

Ellis *et al.*, 2010

- High Intensity
- Low Intensity

0 25 50 nm

0 50 100 km

Data Sources: Coull *et al.*, 1998. Ellis *et al.*, 2010. © OSI, 2021.
Basemap: Sources: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors.

Client: Wicklow Sea Wind Limited	Project: Wicklow Offshore Wind Farm
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Title:
Thornback Ray, Tope Shark and Whiting Nursery Grounds

Figure: 4f Drawing No: PC3392-RHD-ZZ-XX-DR-Z-0085

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The proposed surveys have the potential for effects on fish and shellfish ecology through the following:

- Habitat loss/ disturbance from the benthic and geotechnical surveys;
- Increased suspended sediments and sediment re-deposition leading to gill damage or barrier effects;
- Impacts from underwater noise generated during the geophysical surveys;
- Vessel collision (basking sharks); and
- Accidental pollution event leading to toxic contamination.

Disturbance to supporting habitats of fish and shellfish and removal of sediment from sampling surveys will be localised to the immediate vicinity of the sediment sampling location. Suspended sediment plumes and changes to seabed characteristics are expected to be localised and negligible in comparison to natural sediment transport, rapidly returning to natural background levels.

The proposed site investigation surveys from the vessel and geophysical survey could cause underwater noise within the immediate vicinity of the survey vessel. Nedwell *et al.* (2012) estimated that seismic surveys could cause potential impacts to Atlantic Herring, which is a noise sensitive fish species, at a distance of up to 4km. The underwater noise generated by the works are given in (potential noise levels identified in Section 1.2 of the Schedule of Works). This underwater noise could potentially affect fish sensitive to noise and act as a barrier that could impede migration pathways (note that basking shark is an elasmobranch (sharks and rays) which is a group with generally low sensitivity to noise vibrations due to the fact they do not have a swim bladder (Popper *et al.*, 2014; NatureScot, 2020) and noise disturbance is not expected to impact them). However, due to the fact that sound sources from the survey will not consist of significant rapid pressure changes, and considering the distance offshore and short-term temporary nature of the surveys, no significant impacts are expected in relation to fish and shellfish ecology due to the generation of underwater noise.

Vessel collision also poses a threat to this slow-moving species and basking sharks have a medium sensitivity to collision (NatureScot, 2020). Collision risk increases with increasing vessel speed; as the survey vessels will be moving slowly, collision risk is generally low. Risk will be reduced further on the basis of mitigation measures implemented for the survey (see Section 2 of the Schedule of Works).

During the proposed surveys, there is the potential for pollution from spills or leaks of fuel and oil. The risk of this arising can be minimised by following standard good practice, and as required by law, with regard to pollution prevention guidance, which is detailed further in **Section 3.13**.

Overall, due to the scale and nature of the proposed surveys, it is not expected there will be an impact to fish and shellfish ecology. Additionally, the SISAA report considered impacts to Annex II migratory fish species and conclude there would be no likely significant effect to any Annex II fish species.

3.7 Marine Mammals

Ireland has recorded 25 species of cetacean, all of which are recognised as protected species under the Council Directive 92/43/EEC (“the **Habitats Directive**”) and the Irish Wildlife Act 1976, as amended.

Over a two-year survey period from 2015 – 2016, the ObSERVE Programme recorded 19 cetacean species during aerial surveys of the Celtic and Irish Sea (Rogan *et al.*, 2018). In both years, more cetacean sightings occurred in the winter period than in the summer period and cetacean species richness was higher in the winter months than in the summer periods. Bottlenose dolphins, harbour porpoise and common dolphins were the most frequently sighted odontocete (toothed whale/dolphin) species, whereas minke whale was the most frequently sighted mysticete (baleen whale) species (Rogan *et al.*, 2018).

At the Dublin Array project, harbour porpoise was the most common recording, also observed were the minke whale and Risso’s dolphin (Dublin Array, 2012).

Recent monthly aerial surveys were undertaken at Arklow Bank (2018-2020), located approximately 1.6km to the west of the survey area and include a 4km buffer covering part of the cable AoS (Sure Partners Limited, 2020). Boat-based surveys were also undertaken during 1996-1997 with a 5km buffer around the offshore wind farm. The Arklow Bank Scoping Report also states that harbour porpoise was the most common recorded species, with low sightings of Risso's dolphin (Sure Partners Limited, 2020).

Two cetacean species are listed under Annex II of the Habitats Directive, requiring member states to designate areas of protection for those species. These species are harbour porpoise and bottlenose dolphin. Therefore, only these two cetacean species are included in the assessments.

The grey seal *Halichoerus grypus* and the harbour seal *Phoca vitulina* are observed throughout the Irish Sea. Both species are listed under Annex II of the Habitats Directive, requiring member states to designate areas of protection for them. Harbour and grey seals are both present on the East coast of Ireland and can be found using haul out sites and in offshore waters along the coast of Dublin, with grey seal usage of the area being a lot higher than that for harbour seal. The Lambay Island SAC provides year-round haul-out habitat for both species and includes regionally significant breeding and moulting sites. Both seals are qualifying features of the Lambay Island site. The adjacent Rockabill and Dalkey SAC contains seal haul-out sites and, although seals are listed as present, they are a qualifying feature of the SAC.

Coastal otters mostly feed close to the shore in water less than 3m deep (Natural Resources Wales (NRW), 2017). For otters, the maximum potential home range can be up to 40km on land (Green *et al.*, 1984; Roche *et al.*, 1995).

The cable AoS reaches the coastline, and it is possible that some of the surveys could be undertaken from a small boat with shallow draught, and therefore there is the potential for effect to any otter within the inshore and coastal regions of the cable AoS (as noted above, otter are likely to forage close to shore, to waters up to 3m deep only).

The fourth otter survey of Ireland was undertaken between May 2010 and January 2011 by NPWS, covering a total of 852 sites (Reid *et al.*, 2013). The survey was undertaken in accordance with the Standard Otter Survey method, developed by Jeffries (1966) and adopted by Lenton *et al.*, (1980). Sites were selected at intervals of between 5 km and 8 km along river systems, coasts, lakes, or shores, at bridges or other suitable sites. Surveys were carried out for signs of otter presence (e.g. spraints, footprint, fish remains), and wherever otter presence was detected, the site was recorded as positive for otter presence.

A total of 134 of the otter surveys sites were coastal locations, and 76 of those (or 56.7%) were found to have signs of otter presence (spraints, footprints and fish remains). Within the eastern survey area, which the cable AoS is located adjacently to, there were 65 locations surveyed, with 34 being recorded as having otter presence. As otter presence refers to spraints, footprints and fish remains, this indicates that otters are present in the area for foraging or commuting, rather than residing in the area. The estimated population of otter within the eastern survey area was 585 (95% Confidence Interval (CI) = 556 – 742). There are two otter survey sites identified to have otter presence near the cable AoS; these were at a bridge near Kilmullin (approximately 3km inland of the coastline adjacent to the cable AoS), and near the northern end of Brittas Bay beach (the cable AoS is approximately 2.3km offshore of the site, which is on the coastline) (Reid *et al.*, 2013).

The *Mammal Atlas of Ireland 2010-2015* (Lysaght & Marnell, 2016) shows that from 2010 to 2015, along the coastline adjacent to the cable AoS, there were a number of sightings of otter (**Figure 5**). A total of 11,208 records of otter were used to determine the location and number of otter in the periods before 2010 (for all data obtained), and between 2010 and 2015.

An updated *Atlas of Mammals in Ireland* dataset shows an increased presence of otter in the vicinity of the proposed cable AoS compared to the data for 2010-2015, with a number of records of otter in the grid square covering the coastline from Greystones to Wicklow in the 2016-2025 dataset; this includes a sighting of an otter in Wicklow Harbour, Broadlands Lough, Newcastle, Kilcoole, The Breaches, and Roundwood. A total of 16 otters were reported in these sites⁶, including two cubs. A number of these sites are adjacent to the cable AoS, along the coastline.

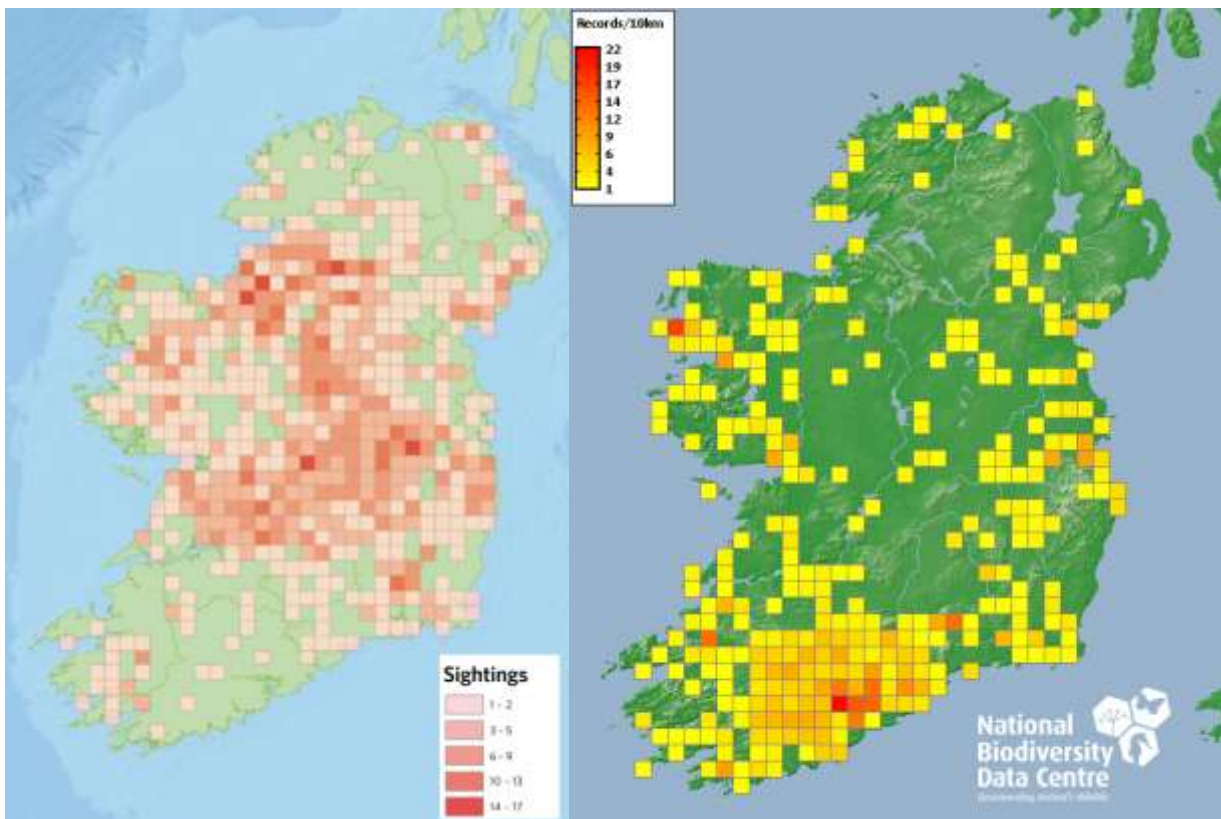


Figure 5 Left = otter sightings from 2010 to 2015, provided in the *Mammal Atlas of Ireland* (Lysaght & Marnell, 2016). Right = otter records within the *Atlas of Mammals in Ireland* dataset (collated by the National Biodiversity Data Centre)

The potential impacts of the proposed surveys to marine mammals include the following:

- Underwater noise disturbance;
- Potential collision risk with vessels;
- Potential barrier effects;
- Potential disturbance at haul out sites (for grey seal and harbour seal only);
- Potential changes in water quality, including from accidental spills and leaks;
- Potential effects on in prey species; and
- Cumulative effects.

Underwater noise disturbance

An underwater noise desk-based assessment has been undertaken for the proposed surveys in relation to marine mammals in the NIS and SISAA which are being submitted alongside this Non-Statutory Environmental

⁶ Reported as sightings of live animals.

Report. The desk-based assessment concluded that there would be no significant impacts to marine mammals due to the proposed surveys.

Collision risk

Studies have shown that larger vessels are more likely to cause the most severe or lethal injuries, with vessels over 80m in length causing the most damage to marine mammals (Laist *et al.*, 2001). Vessels travelling at high speeds are considered to be more likely to collide with marine mammals, and those travelling at speeds below 10 knots would rarely cause any serious injury (Laist *et al.*, 2001). Given that all vessels will be slow moving, and the majority would be less than 80m in length (with the geotechnical survey vessels having the potential to reach 90m in length), and the area is already relatively busy with regards to vessels, it is considered there will be no significant impacts to marine mammal species as a result of collision risk.

Barrier effect

There is no potential for barrier effects to marine mammals as a result of the proposed surveys, preventing movement of marine mammals between important feeding and / or breeding areas, or potentially increasing swimming distances if marine mammals avoid the cable AoS (approximately 227km²) and go around it. Therefore, there will be no impact to marine mammals from barrier effects due to the proposed offshore surveys.

Disturbance at haul out sites

The distance between the proposed survey area and both grey and harbour seal haul-out sites is considerably more than the reported disturbance distances for both species. In addition, any vessels travelling between the cable AoS and Dublin Port would use existing shipping channels and routes and considering the already busy nature of the area with regard to shipping, it is not considered that there would be any significant impacts to seals as a result of disturbance from the proposed offshore surveys.

Changes in water quality

During the proposed surveys, there is the potential for pollution from spills or leaks of fuel and oil. The risk of this arising can be minimised by following standard pollution prevention requirements, which is detailed further in **Section 3.13**. If the measures are adhered to it is considered there will be no impacts to marine mammals in relation to accidental pollution events.

Effects on prey species

Given there are no significant impacts expected to fish and shellfish ecology (**Section 3.6**) and the ability of marine mammals to feed on a wide range of prey, and to move to other locations for foraging in the event that there is a change in prey availability, it is not considered that there is the potential for any significant impacts any marine mammal species in relation to effects on prey species.

Overall, due to the scale and nature of the proposed surveys, it is not expected that there will be an impact to marine mammals. Additionally, the SISAA and NIS considered impacts to Annex II marine mammals, concluding there would be no adverse effect on the integrity of any site designated for marine mammals.

3.8 Birds

The coastal sea cliffs, estuaries and offshore islands of Ireland are host to a number of nationally and internationally important bird species, with many areas designated as Special Protection Areas (SPAs). Coastal habitats provide important breeding sites for many species of seabirds, a number of which are protected under national and European legislation.

At least 45 species of seabird (including divers and grebes) have been recorded during at-sea surveys in Irish waters, of which 23 species regularly breed around Ireland (Pollock et al., 2000, Mackey et al., 2004). In addition, a further 59 species of waterfowl and wader regularly occur at coastal sites such as estuaries around Ireland: including 5 grebe species, 2 heron species, 26 species of wildfowl and 26 wader species (Crowe 2005). Some of these species are migratory and are present only during migration periods in spring and autumn; others come to Ireland to breed or to spend the winter, while some are resident all year round.

3.8.1 Seabirds

3.8.1.1 Breeding seabirds

The breeding seabirds in the region are present at their colonies largely between the months of March and August. Colonies are predominantly located on islands, and tall cliffs of the mainland, while gull colonies may be further inland on moors or loughs. Terns typically breed on low islands and shingle or sandy beaches. All breeding seabirds undertake foraging commutes into marine waters to forage for themselves and for their nestlings (predominantly between May and August). While many seabirds forage far offshore and have ranges of tens or hundreds of kilometres from their colonies, terns and gulls are more prone to foraging in coastal and inshore waters, as well as inland freshwater sites.

Conservation status

Breeding seabirds in the region receive legal protection largely through designation of many cliff and island sites as SPAs. At these sites, individual species may be qualifying features, in addition to the breeding seabird assemblage as a whole. Birds are protected while outside the boundaries of the SPA where they are breeding, for example when foraging at sea, and sites where they forage are regarded as supporting habitat.

3.8.1.2 Non-breeding seabirds

Most seabird species breeding in Irish waters are partially or fully migratory populations which spend the winter in open oceanic waters, or coastal waters at more southerly latitudes.

Many wintering seabirds in Irish waters are not closely associated with their colonies and related island and coastal habitats, instead foraging and resting in offshore or inshore waters, often depending on sea conditions. However, in winter the seabird assemblage includes seaducks, grebes and divers which rest and forage in inshore marine waters, having bred in largely freshwater Arctic and sub-Arctic nesting sites.

Conservation status

Non-breeding seabirds receive protection at a number of SPAs as qualifying features in their own right, if the site supports a nationally or internationally significant number of individuals during one or more of the non-breeding seasons (passage, winter). Most commonly these features are gull or tern species. The designation is typically based on the site providing habitat for one or more key activities such as foraging or roosting.

3.8.2 Waterbirds

3.8.2.1 Breeding waterbirds

While a range of waterfowl and wader species breed in Ireland, many are partial-migratory species whose numbers in Ireland peak in the non-breeding period following arrival of significant numbers of additional individuals from elsewhere in the species' breeding range. Other species are fully migratory and their populations are absent from Ireland during the breeding season (or present 'over-summering' in small numbers). Across both migratory strategies, many waterbird species occupy breeding season habitats which are relatively inland, freshwater or at higher altitude than their coastal wintering habitats.

Conservation status

Due to these factors, waterfowl and waders rarely constitute a breeding qualifying interest of coastal or marine SPAs in Ireland.

3.8.2.2 Non-breeding waterbirds

Waterfowl wintering in the region are a diversity of swans, geese and ducks, and while many species are associated with freshwater and terrestrial habitats, they also include species which routinely forage and rest within the intertidal and inshore marine environment. Waders present in their non-breeding periods (many overwintering but some species peaking in numbers on passage during autumn or spring migration seasons) are largely associated with intertidal estuarine and marine habitats. In species highly dependent on invertebrate food sources of intertidal mud and sand, their foraging and resting cycles closely follow those of the tide.

Conservation status

Wintering waterbirds in the region include species listed under the Bern Convention and Annex I of the EU Birds Directive, and they are subject to legal protection largely through designation of many sites, including inland freshwater bodies, estuaries, coastal wetlands and islands, as SPAs and Ramsar sites. At these sites, individual species may be qualifying features, in addition to the wintering waterbird assemblage as a whole.

3.8.3 Examples of designated supporting habitat

Examples of foreshore marine habitat use by birds at protected sites in the area are provided here.

The Murrough SPA is a coastal wetland complex which includes freshwater, brackish and marine waterbodies within its boundary, interspersed with dry barrier habitats of shingle and stones and inland terrestrial habitats such as grassland. The marine foreshore includes a shingle ridge, part of which is used for nesting by little terns which are specialist breeders of gently sloping shoreline. The grassland habitats provide graze foraging for the migrant swan, duck and goose species which overwinter at the site. The intermixing of aquatic habitats of varying salinity provides diverse foraging, bathing and roosting waters for non-breeding waterbirds, and seabirds such as gulls and terns.

Also in close proximity is Wicklow Head SPA, a rocky headland used for nesting by seabirds of cliff-ledges – gulls, auks, fulmar and shag. The geology is "*extensive exposures of mica-schist.*" Most of the breeding seabirds nest on the length of headland where the cliffs are highest (approximately 60 m).

3.8.4 Relevant past baseline surveys

Site specific surveys at Arklow Bank (plus a 4km buffer) were undertaken (with boat-based surveys 2000 to 2009 and aerial surveys 2018-2020 (Sure Partners Limited, 2020)). These surveys partially overlapped the cable AoS. The 2000-2009 surveys found that kittiwake was the most abundant species, whereas in the 2018-2020 surveys guillemot was the most abundant species. During the 2018-2020 surveys, some summer months recorded over 1,000 individuals of guillemot in each survey (Sure Partners Limited, 2020).

Red-throated divers were recorded in most months during the site-specific surveys, although typically in low numbers except for mid-winter peaks. In December 2019, 95 red-throated divers were recorded by the aerial surveys (Sure Partners Limited, 2020).

The surveys also recorded razorbill *Alca torda*, gannet *Morus bassanus*, fulmar *Fulmarus*, Manx shearwater *Puffinus puffinus*, gulls (black-headed gull *Chroicocephalus ridibundus*, great black-backed gull *Larus marinus*, herring gull and lesser black-backed gull *Larus fuscus*, common gull *Larus canus*, little gull *Hydrocoloeus minutus*), great skua *Stercorarius skua* and Arctic skua *Stercorarius parasiticus* and terns (common, sandwich *Thalasseus sandvicensis* and Arctic terns *Sterna paradisaea*) (Sure Partners Limited, 2020). Lower sighting numbers were recorded of common scoter *Melanitta nigra*, shag and puffin *Fratercula arctica*.

3.8.5 Potential impacts

The impacts identified below are as summarised by the statutory body in England based on the history of offshore renewables surveying and cabling in UK waters (Natural England 2022). These impacts are expected to apply equally in Irish waters. The sources of potential direct impact to birds from survey activities are considered to be:

- Disturbance/displacement/barrier to birds from survey activities presence of vessels and associated equipment (visual disturbance), noise (above-water and underwater); and -
- Changes in suspension of sediments and other solid material (affecting water clarity).

Sources of potential indirect impact to birds via prey and/or supporting habitats, across survey activities, are considered to be:

- Disturbance/displacement effects on birds' prey populations e.g. fish and invertebrates, from vibration, noise or physical disturbance to the seabed and its substrata; and
- Changes in suspension of sediments and other solid material.

An additional range of sources of impact are:

- Introduction of light, invasive and non-indigenous species, nutrients, or organic matter;
- Deoxygenation;
- Contamination from litter, hydrocarbons, synthetic compounds, transition elements or organometals; and
- The potential for accidental discharge and spillage of oils, fuels and materials would be managed through compliance with MARPOL.

During the proposed surveys, there is the potential for pollution from spills or leaks of fuel and oil. The risk of this arising can be minimised by following standard good practice, and as required by law, with regard to pollution prevention guidance, which is detailed further in **Section 3.13**. It is considered there will be no impacts in relation to ornithological receptors due to pollution events.

Overall, due to the scale and nature of the proposed surveys, it is not expected that there will be an impact to birds from any of the sources listed above. The SISAA and NIS considered the impacts to European sites

for birds (SPAs), concluding there would be no adverse impact on the integrity of any site designated for birds. European sites considered in the screening include:

- The Murrough SPA;
- Wicklow Head SPA; and
- Dalkey Islands SPA.

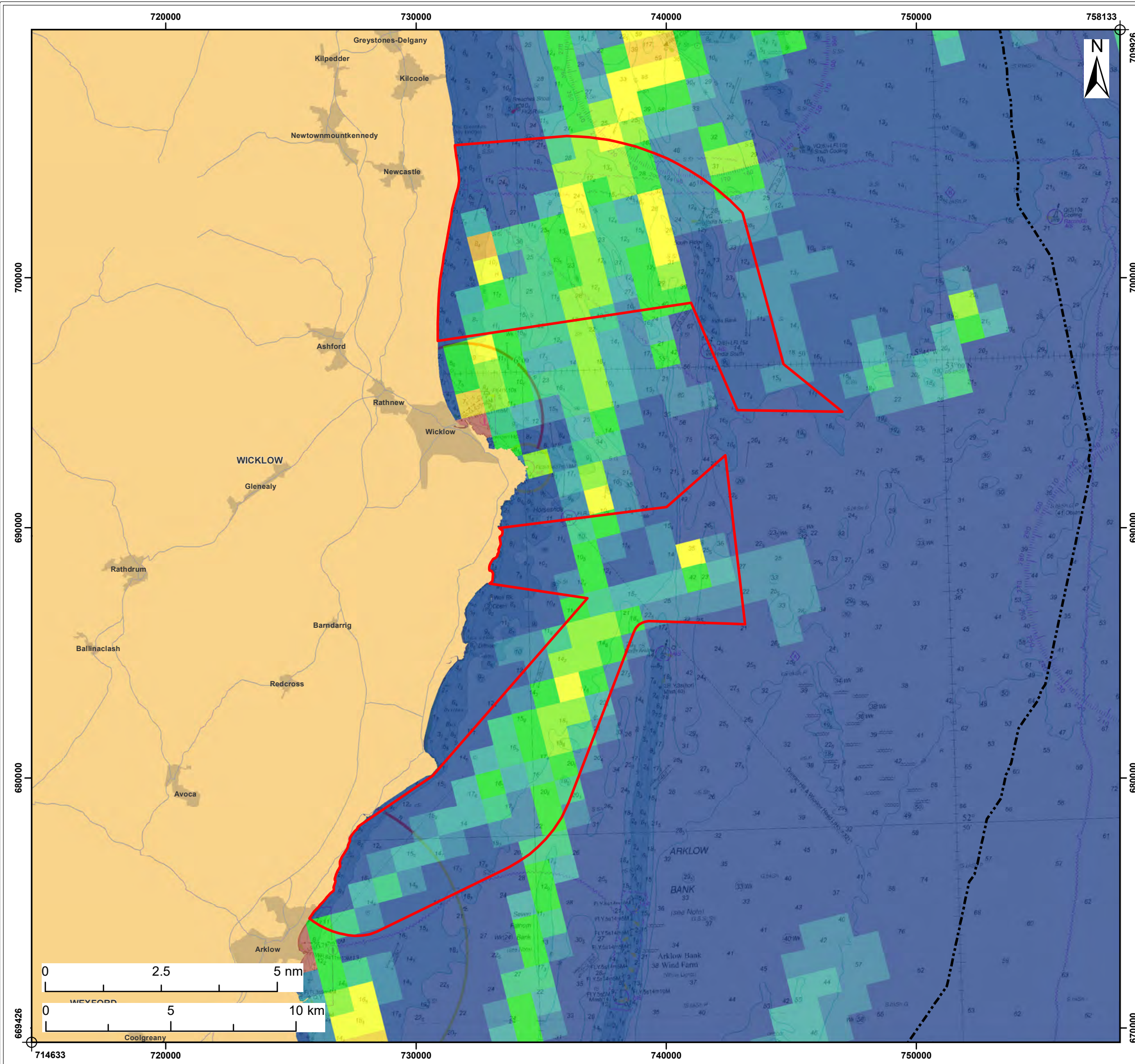
Note that following identification of a little tern colony in the Murrough SPA in close proximity to the initial survey area, the cable AoS was amended to create an additional buffer of to the little tern colony (see SISAA for details).

3.9 Commercial Fisheries

The European Marine Observation and Data Network (EMODnet) shipping density data and European Maritime Safety Agency (EMSA) route density data show the density of fishing or fishing routes through the cable AoS, shown on **Figure 6 a-b**. There are commercial fishing vessels that pass through the cable AoS. Ireland's Marine Atlas shows that dredging, trawling, potting and seine nets occur surrounding and within the boundary of the cable AoS. Whelk fishing with pots is the predominant fishing activity within the cable AoS with some beam and bottom trawling activity also occurring.

A Fisheries Liaison Officer (FLO) is engaged in the project and will work with the industry to fully understand the fishing activity within the offshore survey area and the measures required during the survey works. The FLO will also assess Vessel Monitoring System (VMS) data.

Due to the proposed surveys being short term and temporary, and due to the presence of alternative fishing grounds surrounding the cable AoS, there are no significant impacts expected to commercial fisheries.



Legend:

- Wicklow Cable Area of Search
- Ireland 12nm Limit

Time Spent by Fishing Vessels in 1km² - Monthly Average 2019 (hours/km²/month)

- 0 - 0.25
- 0.26 - 0.5
- 0.51 - 0.75
- 0.76 - 1
- 1.01 - 1.5
- 1.51 - 2
- 2.01 - 4
- 4.01 - 6
- 6.01 - 8
- 8.01 - 250

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Title:
Commercial Fisheries Shipping Densities

Figure: 6a Drawing No: PC3392-RHD-ZZ-XX-DR-Z-0086

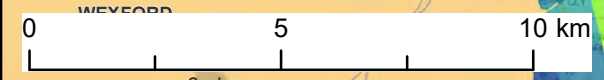
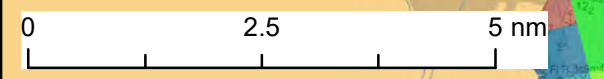
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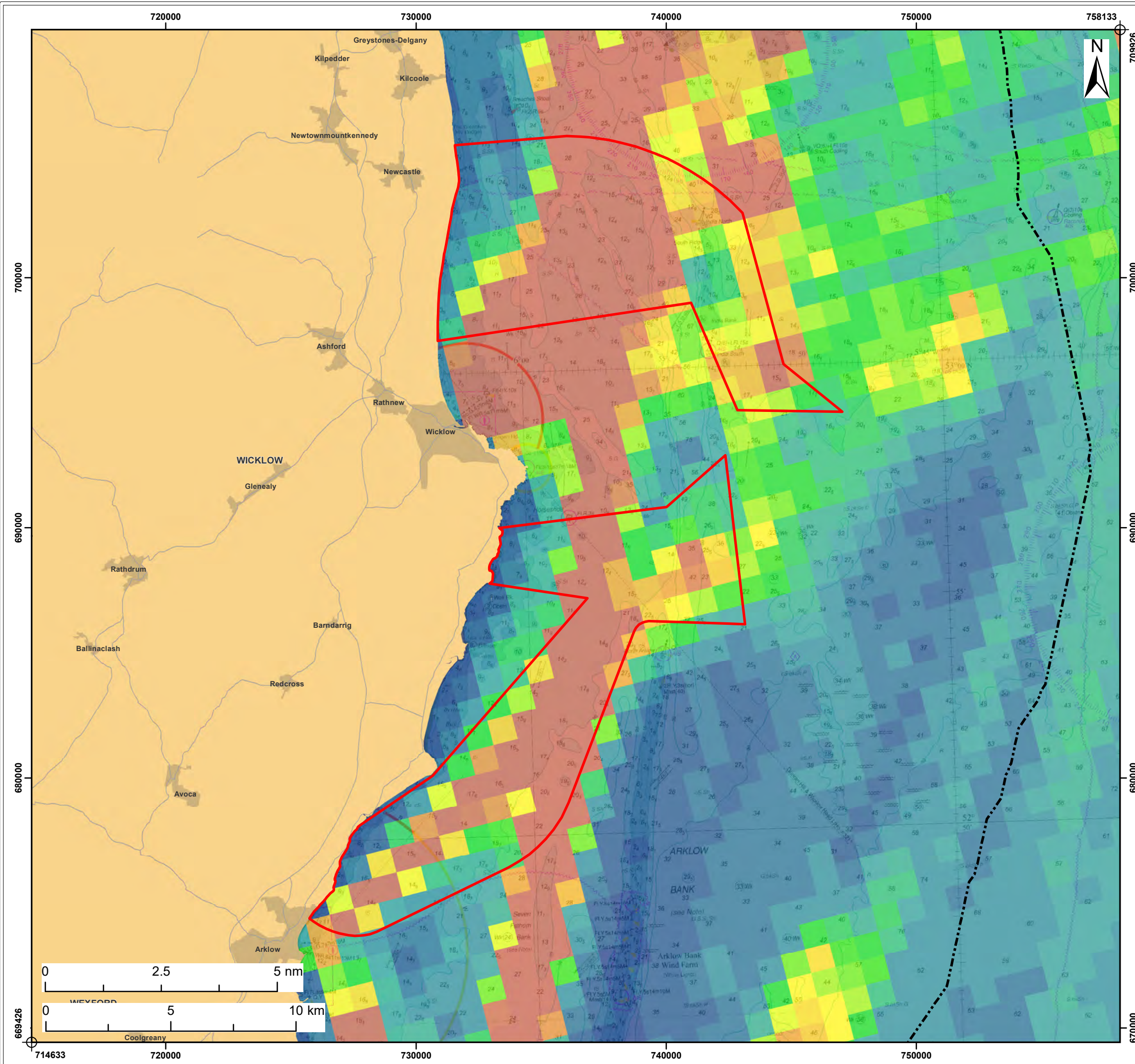
Co-ordinate system: IRENET95 Irish Transverse Mercator



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Legend:

- Wicklow Cable Area of Search
- Ireland 12nm Limit

Route Density for Fishing Vessels - Yearly Average 2019 (routes/km²/year)

	0 - 0.09		40.1 - 45
	0.1 - 5		45.1 - 50
	5.1 - 10		50.1 - 55
	10.1 - 15		55.1 - 60
	15.1 - 20		60.1 - 65
	20.1 - 25		65.1 - 70
	25.1 - 30		70.1 - 75
	30.1 - 35		75.1 - 80
	35.1 - 40		80.1 - 85
			85.1 - 90
			90.1 - 95
			95.1 - 100
			100.1 - 600

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Title:
Commercial Fisheries Route Densities

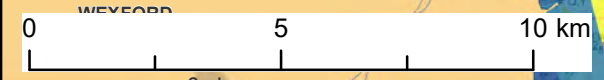
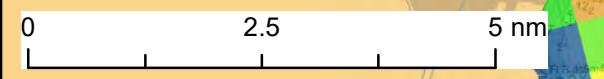
Figure: 6b Drawing No: PC3392-RHD-ZZ-XX-DR-Z-0087

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3.10 Shipping and Navigation

EMODnet's shipping density and EMSA's route density shows an area of high-density shipping passing through the cable AoS, shown in **Figure 7 a-b** below. There are a number of vessels including cargo vessels and tankers entering Dublin Port, with a defined route passing across the cable AoS from Dublin across the Irish Sea into UK waters. The rest of the cable AoS generally shows a low number of vessels. Therefore, there is a risk of collision due to the presence of the survey vessels.

Surveys will be undertaken in compliance with the International Regulations for Preventing Collisions at Sea. Other measures which will be implemented to prevent risks to existing shipping and navigation include submission of Notice to Mariners covering each survey period and appropriate vessel lighting for navigational safety.

The surveys will be short term and temporary and there are no likely significant impacts expected upon shipping.

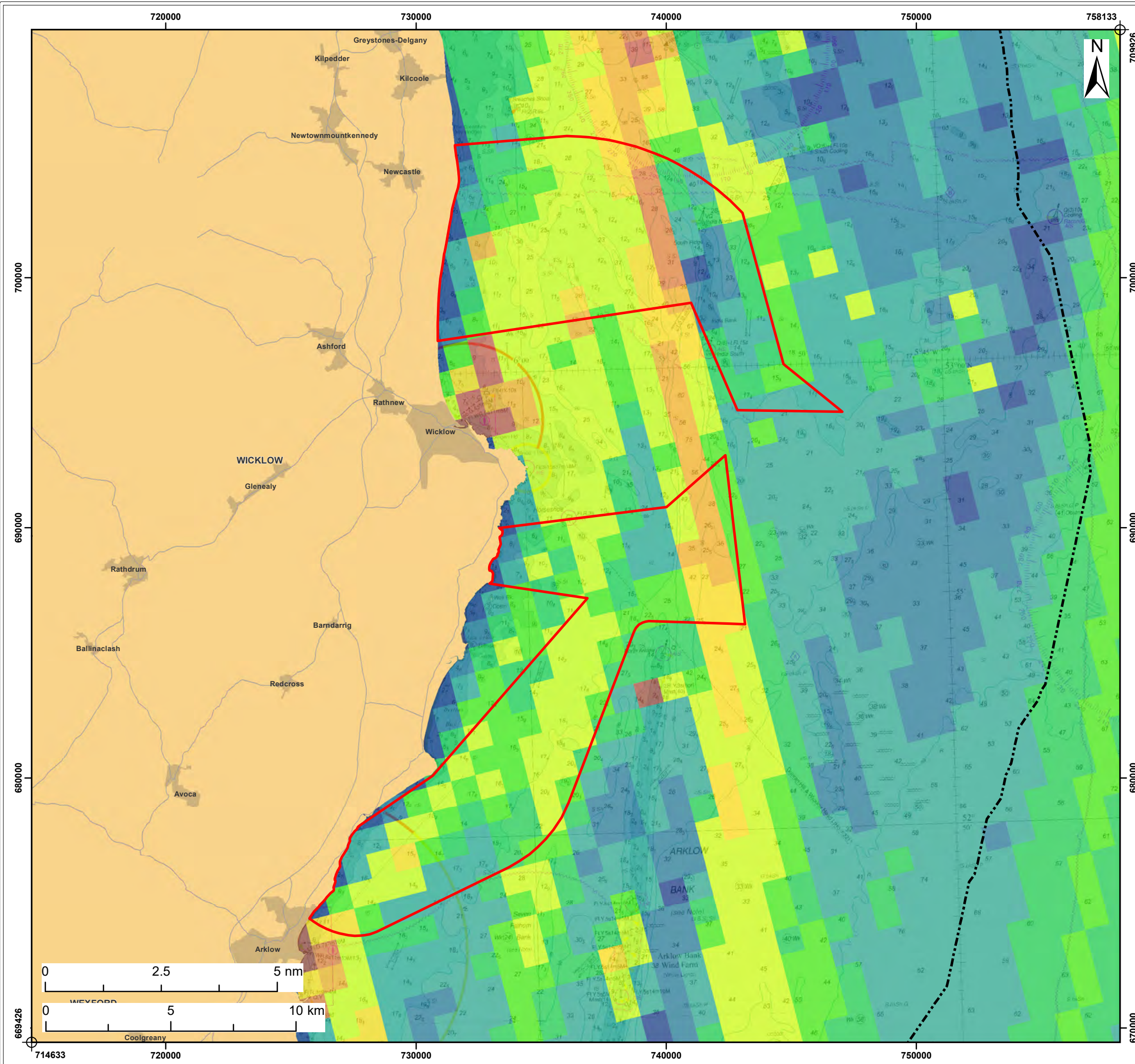
3.11 Other Marine Users

The KIS-ORCA offshore renewables and cable awareness data shows there are four undefined submarine cables running through the cable AoS. The cable AoS overlaps approximately 2km² with The Arklow Offshore Wind Farm (phase 2 foreshore lease area) and approximately 9.5km² of the Latitude 52 Offshore Wind Farm (foreshore lease application submitted). The marine assets are shown on **Figure 8** below.

Due to these existing offshore assets in close proximity with the cable AoS, there is potential for the assets to be impacted by the proposed surveys. However, the following measures will be implemented in order to prevent impacts to these existing offshore assets:

- Geophysical surveys will be undertaken first to identify the locations of the assets and determine if there are any others not currently identified from pre-existing data;
- Geotechnical and benthic ecology surveys will be undertaken after the geophysical surveys, and the design of the surveys will be based on the results of the geophysical surveys;
- A safety zone of 250m buffer around any identified assets will be imposed and no seabed samples will be collected from within the safety zone during the geotechnical and benthic surveys; and
- Third party asset owners will be consulted prior to the intrusive surveys works being undertaken.

If the measures listed above are implemented, it is considered there will be no likely significant impacts to existing offshore assets due to the proposed surveys.



Legend:

- Wicklow Cable Area of Search
- Ireland 12nm Limit

Time Spent by All Vessels in 1km² - Monthly Average 2019 (hours/km²/month)

	0 - 0.25
	0.26 - 0.5
	0.51 - 1
	1.01 - 1.5
	1.51 - 2
	2.01 - 4
	4.01 - 6
	6.01 - 8
	8.01 - 10
	10.01 - 30
	30.01 - 550

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Title:
Shipping Densities

Figure: 7a **Drawing No:** PC3392-RHD-ZZ-XX-DR-Z-0088

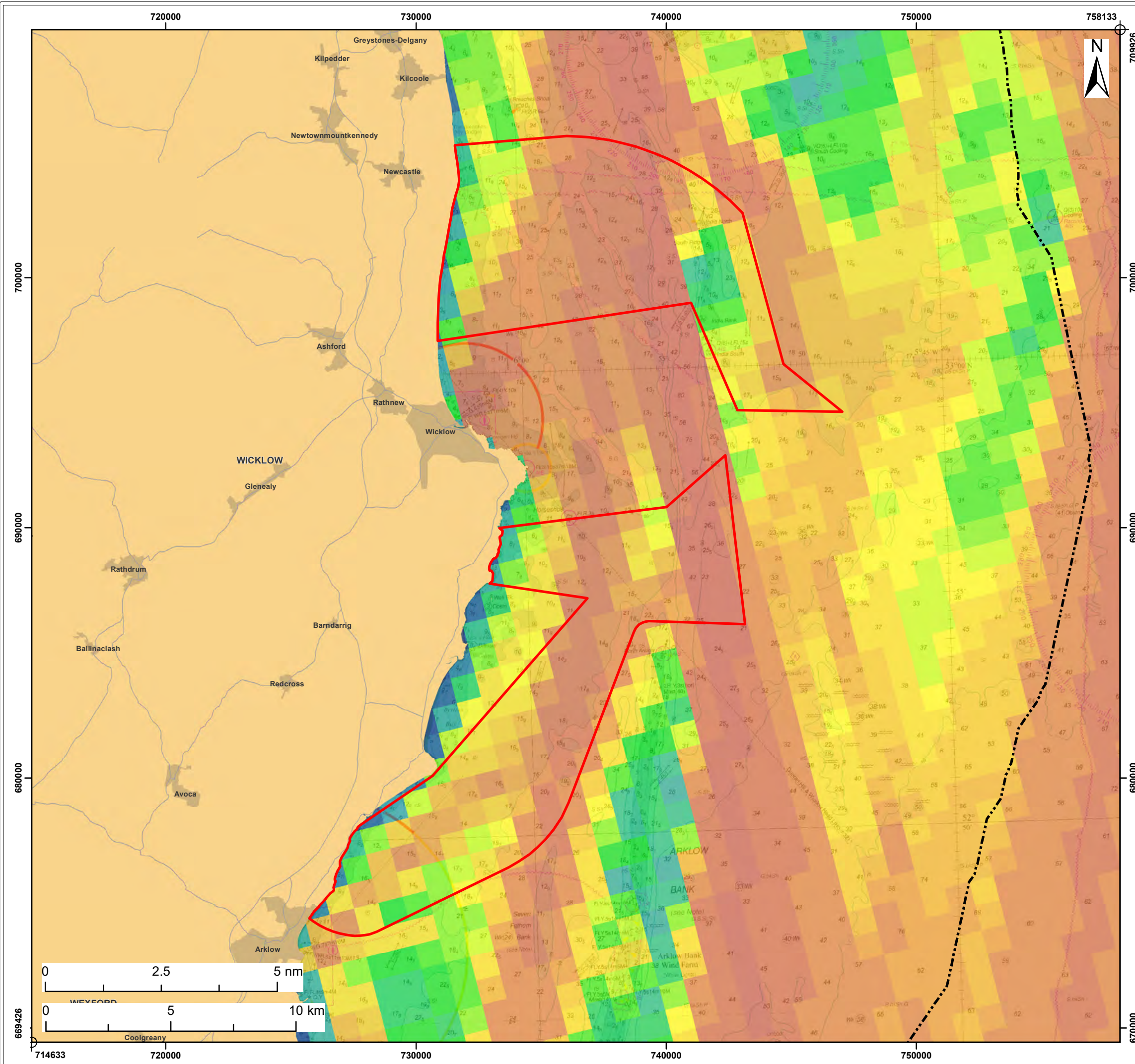
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Legend:

- Wicklow Cable Area of Search
- Ireland 12nm Limit

Route Density for All Traffic - Yearly Average 2019 (routes/km²/year)

	0 - 0.1		60.1 - 70
	0.2 - 5		70.1 - 80
	5.1 - 10		80.1 - 90
	10.1 - 20		90.1 - 100
	20.1 - 30		100.1 - 125
	30.1 - 40		125.1 - 150
	40.1 - 50		150.1 - 175
	50.1 - 60		175.1 - 200
			200.1 - 400
			400.1 - 1,000
			1,000.1 - 2,000

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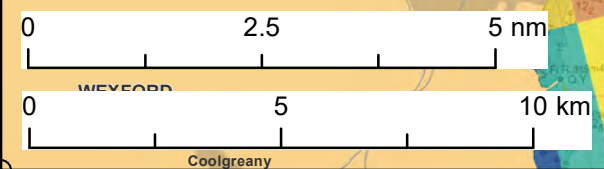
Title:
Route Densities

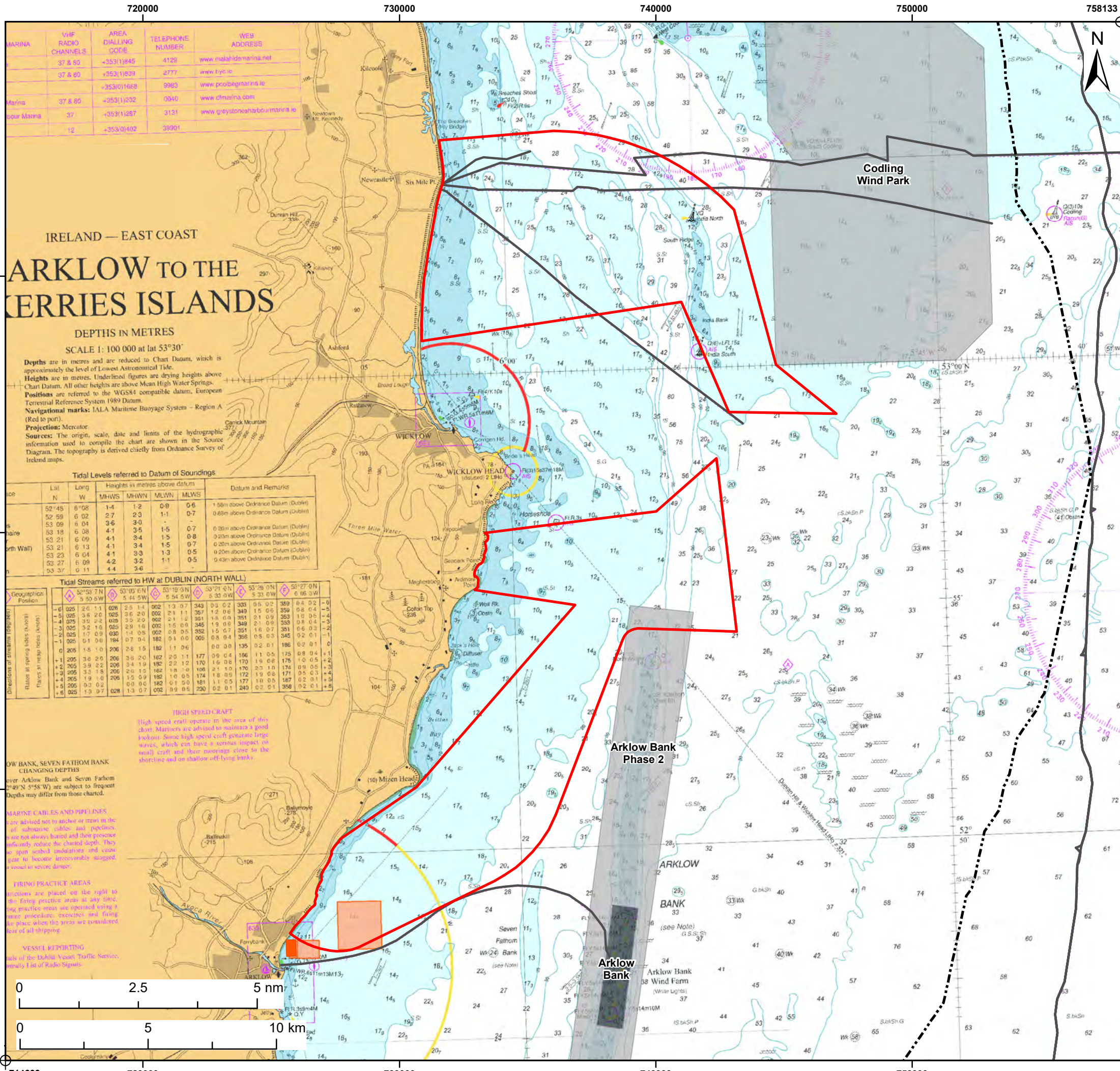
Figure: 7b **Drawing No:** PC3392-RHD-ZZ-XX-DR-Z-0089

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Legend:

- Wicklow Cable Area of Search
- Ireland 12nm Limit
- Buoy - Cardinal
- Cable
- Active Dumping Ground
- Historic Dumping Ground

Offshore Wind Farm Sites

- Operational
- Maritime Area Consent Application

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Title:
Marine Assets and Other Marine Users

Figure: 8	Drawing No: PC3392-RHD-ZZ-XX-DR-Z-0090				
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3.12 Marine Archaeology

The National Monuments Service's (NMS) Wreck Inventory of Ireland Database (WIID) holds records of over 18,000 known and potential wreck sites in Irish waters. These records indicate the presence of seven wrecks overlapping the cable AoS. The seven wrecks from the WIID are shown on **Figure 9** with details provided below:

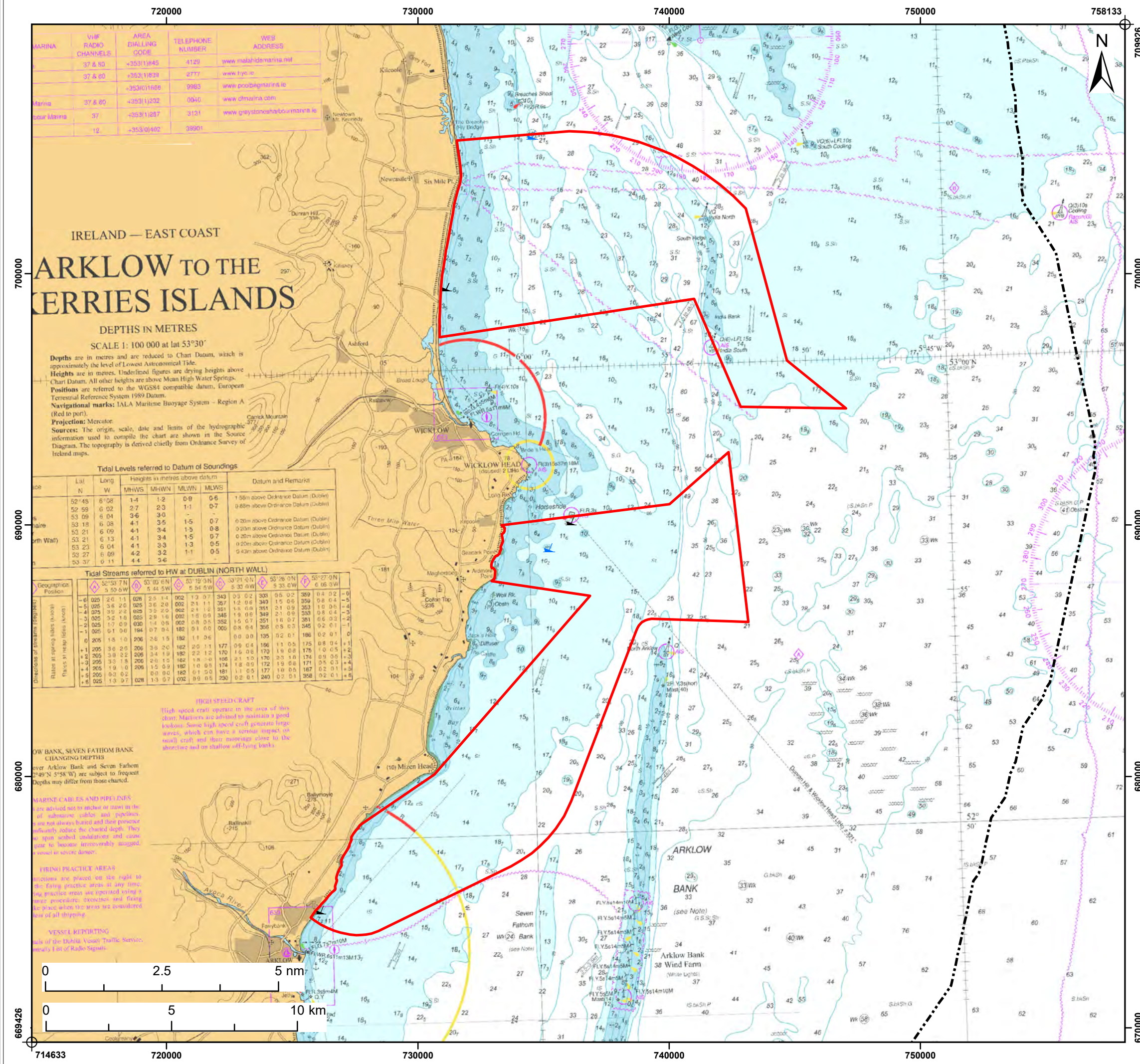
- Wreck number: W09566, name: Corona, other details unknown;
- Wreck number: W11721, place of loss: Ennereilly Strand, Sallymount, Wicklow, other details unknown;
- Wreck number: W10095, name: Thorn, other details unknown;
- Wreck number: W11140, place of loss: 2.7km SE of Wicklow Head, other details unknown;
- Wreck number: W18550, place of loss: Killoughter Strand. 53 01 47.028N, 06 02 42.215W, other details unknown;
- Wreck number: W02313, name: Aid, classification: Brig, place of loss: Wicklow, Killoughter Strand, 3 miles N of. 53 01 47.028N, 06 02 42.215W; and
- Wreck number: 02367, name: John Morrison (SS), classification: Barquentine, place of loss: Wicklow Head, 7.1 miles N, 53 05 00N, 05 59 30W.

Further marine archaeological receptors comprise potential wrecks or aircraft crash sites, or associated debris, which may be present within the foreshore licence survey boundary but not yet discovered, and palaeolandscape features and deposits of palaeoenvironmental interest associated with the potential for submerged prehistoric sites.

There is potential for the proposed survey to impact these protected marine archaeology receptors. However, a number of measures will be in place in order to prevent impacts to these marine archaeology receptors, detailed below.

The proposed surveys will be licenced under the National Monuments Acts 1930 – 2014 and National Cultural Institutions Act 1991. With regards to the magnetometer survey in-particular a detection device consent application will be made to the Department of Housing, Local Government and Heritage (“**DHLGH**”) in advance of the magnetometer survey being undertaken.

The proposed geophysical surveys will be carried out prior to the geotechnical surveys. The data from the geophysical surveys will be analysed by a licensed marine archaeologist in order to determine the scope of the intrusive works (geotechnical and benthic ecology surveys), to ensure the sample locations avoid wrecks and aircraft crash sites, in addition to identified seabed features of potential archaeological interest. The scope of the geotechnical and benthic surveys will be planned to take account of geoarchaeological objectives as advised by a licenced marine geoarchaeology specialist.



Legend:

- Wicklow Cable Area of Search
- Ireland 12nm Limit
- Protected Wreck
- Unknown Wreck

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Title:
Marine Archaeology

Figure: 9 **Drawing No:** PC3392-RHD-ZZ-XX-DR-Z-0091

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A written scheme of investigation (WSI) and protocol for archaeological discoveries (PAD) will be prepared and implemented during the proposed surveys. Additionally, a Retained Archaeologist, and Archaeological Contractor(s) will be engaged as required, ensuring the WSI and PAD are implemented and to provide consistency throughout the project.

If the measures listed above are implemented, it is considered there will be no impacts to marine archaeology due to the proposed surveys. During the geophysical surveys, if further significant archaeological finds are discovered beyond those identified from the WIID there may need to be further measures implemented, however they would be agreed with the DHLGH if required, prior to the geotechnical and benthic ecology surveys being undertaken.

3.13 Water

The benthic ecology and geotechnical surveys will result in disturbance to the seabed, which will cause an increase in suspended sediment concentrations resulting in an increase in turbidity in the water column. The amount of seabed disturbance will be localised, short term and temporary with turbidity expected to return to background levels rapidly, therefore no significant impacts to water quality are expected.

During the proposed surveys there is potential for pollution from spills or leaks of fuel and oil. However, the risk of accidental spills / leaks will be managed through implementation of a Project Environmental Management Plan (PEMP), developed prior to any survey being undertaken. The PEMP will include, but is not limited to:

- Oils and lubricants used in the survey equipment would be biodegradable where possible, and all chemicals would be certified to the relevant standard;
- Good practice procedures would be put in place when transferring oil or fuel between service vessels;
- Vessels must be free of invasive alien species on their hulls and in their ballast water;
- Vessels must comply with the International Maritime Organization (IMO) ballast water management guidelines;
- Appropriate vessel maintenance following guidance from the MARPOL;
- Appropriate spill plan procedures would also be implemented in order to appropriately manage any unexpected discharge into the marine environment;
- Inclusion of control measures such as the requirement to carry spill kits, and bunding to contain any spill, and the requirement for vessel personnel to undergo training to ensure requirements of the PEMP are understood and communicated;
- All work practices and vessels will adhere to the requirements of the MARPOL 73/78; specifically Annex 1 Regulations for the prevention of pollution by oil concerning machine waters, bilge waters and deck drainage and Annex IV Regulations for the prevention of pollution by sewage from ships concerning black and grey waters; and
- All vessels will be certified by the Marine Survey Office.

Due to the short-term temporary nature of the surveys, and following standard good practice, and as required by law, there are no significant impacts expected to water quality due to the proposed surveys.

3.14 Air

Due to the nature of the proposed surveys, there will be no releases to air other than from vessel exhausts, which will not exceed Air Quality standards. Therefore, there will be no impact to air quality due to the proposed surveys.

3.15 Climate

Given there are no impacts to air quality or water quality, and following standard good practice, and as required by law, to prevent accidental oil spillages, the proposed surveys are not expected to contribute to climate change in a significant way.

3.16 Landscape and Seascape

The cable AoS extends across three areas of coastline, spanning approximately a total of 16km. This stretch of coastline has a relatively low-density population. Due to the short-term temporary nature of the surveys, the survey vessels will not cause as much of a visual disturbance. There are no sites designated for landscape and visual receptors such as United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Sites along the boundary of the coastline adjacent to the cable AoS. A large proportion of the cable AoS and to the north towards Dublin harbour is characterised by a number of shipping routes and areas with high vessel density, therefore there is already a visual disturbance caused by vessels.

Due to the short-term temporary nature of the proposed surveys, and due to the existing vessels already present in the area, no impacts to landscape and visual receptors are expected.

3.17 Major Accidents and disasters

The proposed surveys are not expected to add to or cause any natural disasters such as flooding or storms, collision events or major spills. If the navigational good practice measures listed in **Section 3.10** are adhered to, including compliance with the International Regulations for Preventing Collisions at Sea, Notice to Mariners covering each survey period and appropriate vessel lighting for navigational safety, then the risk of accidents would be reduced to as low as reasonably practicable. Additionally, if the water quality good practice measures listed in **Section 3.13** are implemented, no spills are expected. Therefore, no likely significant impacts are expected in relation to major accidents and disasters.

The proposed surveys are not expected to be carried out in adverse weather conditions, however if a survey vessel is unexpectedly caught in such weather, vessels will take appropriate actions, in line for example with the *'Revised guidance to the master for avoiding dangerous situations in adverse weather and sea conditions'* (IMO Circular MSC.1/Circ. 1228, 11 January 2007).

3.18 Cumulative

Existing activities overlapping with the cable AoS have already been considered in relation to commercial fisheries (**Section 3.9**), shipping and navigation (**Section 3.10**), and Other Marine Users (**Section 3.11**). No impacts were determined in relation to existing activities overlapping with the cable AoS. As described in **Section 7** of the SISAA others plans and projects have been identified. Due to the short term, localised and temporary nature of the proposed surveys no cumulative impacts are predicted.

4 Environmental Assessment Conclusion

This environmental assessment exercise has been undertaken considering the characteristics and location of the proposed surveys. An environmental appraisal has been undertaken in order to determine any potential impacts that could arise due to the proposed surveys.

The environmental assessment exercise is supported by and takes into consideration the outcome of the SISAA and NIS that are submitted alongside this Non-Statutory Environmental Report in support of the Foreshore Licence Application for the proposed surveys.

Due to the nature and scale of the proposed surveys, the environmental appraisal has concluded there will be no significant environmental impacts due to the proposed surveys.

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