MERC Consultants
environmental and conservation services

Assessments of Impacts of the Maritime Usage Report

Uisce Éireann South Cork Strategic Model

MERC Consultants, [redacted]
www.mercenvironmental.ie

Document control	
Document reference: AIMU_07102024	
Version	Date
D0.1	14/08/2024
D0.2	07/10/2024

Contents

LIST OF TABLES

LIST OF FIGURES

1. Introduction

Uisce Éireann wish to conduct a strategic modelling study of water currents along a section of the South Cork coast. The study requires the deployment of static Acoustic Doppler Current Profilers (ADCPs) within the study area (see figure 1) to provide the required modelling data. Ancillary instruments, to collect salinity and temperature data, may also be contained within the trawl resistant frames in which the ADCPs will be deployed. The project also includes vessel based assessment of water currents and bathymetry using a combination of vessel mounted ADCPs, single-beam, multibeam and LiDAR surveys, and potentially, the deployment of tidal gauges.

Directive 2011/92/ EU as amended by Directive 2014/52/EU (EIA Directive) relates to the assessment of the effects of certain public and private projects on the environment. Its primary objective is to determine the likely significant effects of a development on the environment. Schedule 5 of the Planning and Development Regulations 2001 (as amended) identifies development for the purposes of Part 10 of the Planning and Development Act 2000. Schedule 5 Part 1 projects require EIA if the stated threshold set therein has been met or exceeded or where no thresholds are set. Where a development is of a class included for in Schedule 5 but is "sub threshold" the development shall be subject to a preliminary examination and, if required, screening to determine if it would or would not be likely to have significant effects on the environment.

A number of additional EU Directives overlap with the EIA Directive relative to impacts of a development on the environment. These include, the EU Water framework Directive (Directive 2000/60/EC) and the Marine Strategy Framework Directive (Directive 2008/56/EC).

This Assessments of Impacts of the Maritime Usage (AIMU) has been prepared to provide the Competent Authority with the relevant information to allow them to make an informed decision of the potential impact of the proposed project on the receiving environment including those relevant to the following Directives:

- EIA Directive
- Water framework Directive
- Marine Strategy Framework Directive

2. Statement of Authority

This report was prepared by MERC Consultants. MERC are a specialist marine ecological survey and consultancy firm. Core staff have more than 60 years of combined experience and specialist knowledge in relation to Irish aquatic habitats and species in addition to the assessment and management of conservation interests. MERC were responsible for preparing the NPWS national monitoring of marine Annex I habitats for compliance under Article 17 of the EU Habitats Directive in the period 2015-2019. In this context MERC were responsible for the assessment and reporting of marine Annex I habitats in Ireland and were the authors of all Article 17 reports and overarching site monitoring reports. MERC are

currently engaged in conducting surveys and preparing the relevant reports for the current (2022-2025) monitoring cycle.

In addition to their scientific expertise MERC have an in-depth knowledge of Irish and European Environmental legislation and policy. In 2011 MERC prepared the text describing Activities Requiring Consent (ARCs) for inclusion in a handbook detailing the regulatory framework for all developments within designated sites in Ireland on behalf of the National Parks and Wildlife Service. They have also produced numerous Conservation Management Plans for the same department. To-date MERC have conducted in excess of 200 ecological reports in support of Appropriate Assessment under Article 6(3) of the EU Habitats Directive.

3. Project Location

Six proposed licence areas located in the vicinity of Kinsale Harbour, Courtmacsharry Bay, Clonakilty Bay, Rosscarbery Bay, Glandore Harbour, Toehead Bay, Roaringwater Bay and their adjoining have been selected for the proposed deployment of the ADCPs and additional bathymetric assessment and water monitoring (figure 1). While it is intended that the ADCPs will be deployed at the locations shown in figure 1 and given in table 1, the wider Foreshore Licence area has been selected to provide alternative deployment positions should the preferred locations be deemed unsuitable due to the presence of, for example, reef habitat. Bathymetric surveys may take place across the intertidal section of the five licence areas.

Table 1. Proposed locations of ADCPs. May be subject to change within the licence area.

ADCP No	Easting (ITM)	Northing (ITM)		Location	Area
1	580526.46	553781.24	Fixed	Kinsale Harbour to Roberts Head & environs	A
2	553529.713	542567.687	Fixed	Courtmacsherry Bay	B
3	552605.014	537852.397	Fixed	Courtmacsherry Bay	B
4	545653.729	536097.718	Fixed	Clonakilty Bay	C
5	533776.235	529876.514	Fixed	Glandore Bay	D
6	532321.647	532818.174	Fixed	Glandore Bay	D
7	524913.436	531617.761	Fixed	Glandore Bay	D
8	523680.546	533218.372	Fixed	Glandore Bay	D
9	523101.954	534110.604	Fixed	Glandore Bay	D
10	522707.212	534483.721	Fixed	Glandore Bay	D
11	517245.65	527362.141	Fixed	Toe Head	E
12	514378.339	525245.141	Fixed	Toe Head	E
13	509771.192	525018.054	Fixed	Toe Head	E
14	499406.264	530092.214	Fixed	Roaringwater Bay	F
15	494301.78	528135.986	Fixed	Roaringwater Bay	F
16	499297.666	523309.45	Fixed	Roaringwater Bay	F
17	503503.033	523452.205	Fixed	Roaringwater Bay	F
18	502753.418	528044.046	Fixed	Roaringwater Bay	F
19	569122.122	548189.997	Vessel mounted	Kinsale Harbour to Roberts Head & environs	A
20	569668.264	546291.979	Vessel mounted	Kinsale Harbour to Roberts Head & environs	A

21	565177.395	549391.824	Vessel mounted	Kinsale Harbour to Roberts Head & environs	A
22	565588.355	548391.443	Vessel mounted	Kinsale Harbour to Roberts Head & environs	A
23	565277.422	547286.974	Vessel mounted	Kinsale Harbour to Roberts Head & environs	A
24	564382.479	545444.391	Vessel mounted	Kinsale Harbour to Roberts Head & environs	A
25	563571.318	537592.78	Vessel mounted	Courtmacsherry Bay	B
26	559915.911	542750.154	Vessel mounted	Courtmacsherry Bay	B
27	540889.776	537760.535	Vessel mounted	Clonakilty Bay	C
28	539673.084	534872.964	Vessel mounted	Clonakilty Bay	C
29	530283.049	534629.681	Vessel mounted	Glandore Bay	D
30	511766.556	527901.564	Vessel mounted	Toe Head	E
31	511433.994	527260.783	Vessel mounted	Toe Head	E
32	508395.589	532167.718	Vessel mounted	Roaringwater Bay	F
33	505145.03	531000.148	Vessel mounted	Roaringwater Bay	F
34	502782.965	532579.09	Vessel mounted	Roaringwater Bay	F
35	500643.109	533247.511	Vessel mounted	Roaringwater Bay	F
36	494748.26	529951.443	Vessel mounted	Roaringwater Bay	F

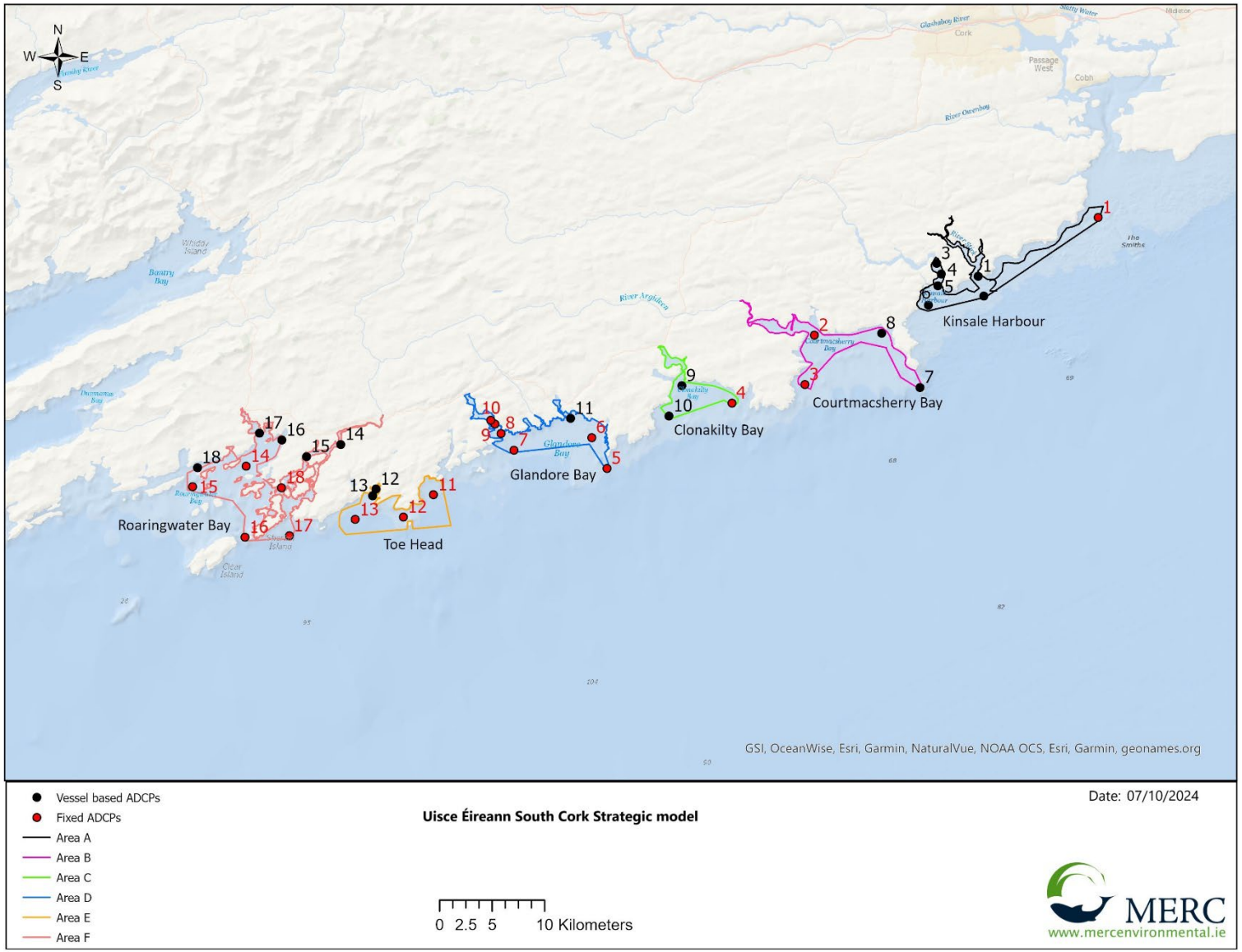

Figure 1. Proposed licence area showing preferred locations of ADCPs.

4. Details of the Proposed Project

4.1 Overview

The proposed project entails the following elements:

- Deployment of a maximum of eighteen (18) fixed ADCPs in trawl resistant frames from a vessel at the preferred locations shown in figure 1. However, it is possible that, based on the bathymetry of the area and additional factors at the time of deployment, some of the ADCPs may need to be moved to alternative locations within the licence area.
- ADCPs will be left *in situ* for no less than 32 days to gather the information required.
- Vessel mounted ADCP surveys at approximately 18 sites.
- Additional ancillary data may also be collected such as conductivity, temperature and depth (CTD) measurements.
- Bathymetric surveys of the intertidal areas using either single-beam, multibeam and LiDAR, or a combination of these technologies.
- Deployment of tidal gauges.

A full description of the scope of works is provided in section 4.2 below.

4.2 Scope of works

Table 2 provides a summary of the scope of works required including the location, duration and frequency of deployment. Further detail of the type of instruments to be deployed and their technical specification is detailed below.

Current Measurements

An ADCP is a hydroacoustic current meter 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. In the present case ADCPs operating in the range of 600 Khz or 1 Mhz will be used. The instrument emits “pings” of sound at a sampling rate of 1-minute average every 10 minutes.

The ADCP is contained within a trawl resistant bottom mount frame *circa* 1.8m x 1.3m x 0.6m with a weight of approximately 300kg. The frame is attached to a ground line, a clump weight and to an acoustic release system carrying a rope retrieval system. The frame also houses a recovery line attached to a small rigid buoy which is held in place by an acoustic release, which releases the buoy on command from a deck unit. Also housed within the frame is lead ballast to secure the frame to the seabed. Additional instrumentation to collect salinity and temperature data may also be contained within the frame. An acoustic pinger is also mounted on the frame to aid in the recovery of the frame in the event of the acoustic release not firing. The frame is deployed with a grapple hook and floating nylon line to serve as a backup means of recovery.

Deployment

The units will be deployed from the desk of a vessel onto the seabed, within the five areas shown in figure 1, where they will remain fully submerged throughout the tidal range**.** Deployment is carried out by lifting the ADCP from the deck of the vessel via a deck crane or A-frame and winch.

Operation

During operation the units will emit "pings" of sound in the range of 600 Khz or 1 Mhz at a sampling rate of 1-minute average every 10 minutes. The ADCP will be left *in-situ* for the sampling duration which will be no less than 32 days.

Recovery

Recover is facilitated by a hydrostatic release which, on command, sends a ranging ping to the release mechanism which if successful releases a buoy connected to a recovery line. The vessel can then simply move into position over the buoy and recover the ADCP into the boat via the crane. On occasion hydrostatic releases fail. To overcome this issue the ADCPs are also fitted with acoustic pingers which can be activated to aid the location of the ADCP and the acoustic release then attempted again. If the release still fails to work the recovery is then attempted by a grapple recovery. This involves trawling a line with a grapple attached across the seabed in the area where the deployment took place to snag the grapple line between the ADCP and grapple anchor.

Bathymetry assessment

A multibeam echosounder (MBES) is a type of sonar frequently used to map bathymetry. It operates by emitting an acoustic wave in a fan shape beneath the point of its transceiver attached the hull of the vessel or more typically mounted on a tow-fish. The time it takes for the sound waves to bounce off the seabed and return to the transreceiver is used to calculate the water depth within the arc of the fan. A typical multibeam echo sounder operates at a sound pressure level of between 200-220 dB re 1µPa at 1m with a peak frequency between 300-500 kHz (300,000-500,000 Hz).

Single beam sonar operates in a similar way to multibeam but with a narrower band width in the regions of a 2-15 degree beam. They are typically used in shallow waters for smaller areas where the time required to achieve 100% insonification with a multibeam sonar is considered unnecessary depending on the purpose the bathymetry is being gathered for.

Light Detection And Ranging (LiDAR) is useful for mapping bathymetry in very shallow water. It operates by emitting two laser light beams from a sensor onboard an aircraft. One beam hits the water surface and is reflected, while the second beam hits the seabed and is reflected back. The difference in time between the two beams returning allows the water depth to be calculated. LiDAR is very useful in areas too shallow for vessels to access and in intertidal areas.

Table 2. Summary of scope of works

Element	Method	Frequency	Location
Fixed ADCP	Fixed ADCP surveys will be conducted using a Nortek AWAC 600 Khz or 1 Mhz unit (or equivalent) deployed on seabed mounted frames. ADCP frames will be equipped with a recovery line attached to a small rigid buoy that is held in place by an acoustic release, which releases the buoy once triggered by a deck unit. Housed within the frame is the battery canister(s) for the ADCP along with lead ballast to prevent movement on the seabed in high energy tidal and wave environments. An acoustic pinger is mounted on the frame to aid in the recovery of the frame in the event of the acoustic release not firing.	32 days. A sampling rate of 1-minute average every 10 minutes for each ADCP sensor is required.	Indicative locations provided in figure 1
Vessel Based ADCP	The Vessel mounted ADCP surveys will be conducted using a TRDI WH Monitor 600kHz ADCP (or similar) to an aluminium pole that will be mounted to the side of the vessel ensuring the ADCP is deployed below the surface of the water. Measurements will be taken periodically at set stations as part of a transect with is repeatedly transversed over a tidal cycle, or taken continuously as the vessel remains on station over a tidal cycle.	13 hours of surveying on 1no spring and 1no neap tide. A sampling rate of a minimum of 1-minute average every 10 minutes for each ADCP sensor is required.	Within MUL Area, limited to marine navigable areas
Water Sampling	Water sampling will be undertaken concurrently with the VMADCP surveys. Periodically samples will be taken from the surface layer of the water column via bucket and telescopic arm, and collected and stored for subsequent analyses	Periodically over 13 hours of surveying on 1no spring and 1no neap tide	Within MUL Area, limited to marine navigable areas
CTD Monitoring	Concurrently with the VMADCP surveys CTD and DO surveys will take place from the vessel. This will involve deploying a Sonde at set intevals for the duration of the tidal survey at each VMADCP location. The sonde will be lowered to just below the surface of the water from the vessel, the sonde will be allowed to settle at the surface of the water before being lowered to the seabed, where the instrument will be lifted from the seabed and allow the values returned to the hand-held device to settle. Once the values from the sonde have settled it will be slowly lifted back to the sea surface and back onboard the vessel.	Periodically over 13 hours of surveying on 1no spring and 1no neap tide	Within MUL Area, limited to marine navigable areas
Bathymetry	Surveying of intertidal areas may require a combination of methods including; Single beam & Multibeam Echosounders, LiDAR, GPS rover.	n/a	Within MUL Area, limited to intertidal areas
Tide Gauge	The inshore tide gauge should be mounted on either a galvanized steel pole to the side of a suitable pier or other permanent fixed structure. Installation should take place on a very low tide so that the mountings can be attached as low as possible down the pier wall to ensure the sensor is below chart datum	Installed for a minimum of 3 months, coinciding with all other sampling	Within MUL Area
Vessel details	Details to be confirmed however vessel likely to be no larger than 16m length, 6m beam and 2m draught.		

5. Environmental Report

Section 5.1 provides a description of the receiving environment and section 5.2 provides an assessment of the potential for impact on it.

5.1 Receiving environment

The Zone of Influence (ZoI) of the proposed project was established in the preparation of Supporting Information for Screening for Appropriate Assessment (SISAA) (MERC, 2024a). This analysis, using a source-path receptor model, concluded that the proposed project has a maximum direct area of impact extending to the outermost boundary of the survey area. There is no potential for impact (no SPR link) to any SAC that does not have a direct connection to the marine. Therefore SACs designated for terrestrial and coastal habitats and species, or freshwater habitats upstream of a hydrological gradient are considered outside of the ZoI.

The bathymetry and predominant habitat types in the area, including within the six proposed licence areas, is known from INFOMAR data. Additional data sources include NPWS marine community mapping for areas within European sites designated for marine Annex I habitats. A detailed description of the ecology of the receiving environment is provided in the SISAA (MERC, 2024a). Table 3 below provides a summary of the environmental baseline and provides an assessment of the potential for impact on the environment.

Table 3. Environmental baseline

Protected sites
European sites (SAC's and SPA's)
The **marine** qualifying interests for the Special Areas of Conservation (SACs) where an overlap with the licence area occurs are as follows: **Lough Hyne Nature Reserve and Environs SAC (000097)** • Large shallow inlets and bays [1160] • Reefs [1170] • Submerged or partially submerged sea caves [8330] **Roaringwater Bay and Islands SAC (000101)** • Large shallow inlets and bays [1160] • Reefs [1170] • Submerged or partially submerged sea caves [8330] • *Phocoena phocoena* (Harbour Porpoise) [1351] • *Lutra lutra* (Otter) [1355] • *Halichoerus grypus* (Grey Seal) [1364] **Clonakilty Bay SAC (000091)** • Mudflats and sandflats not covered by seawater at low tide [1140] **Courtmacsherry Estuary SAC (001230)** • Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140]

The Special Conservation Interests (SCIs) for Special Protection Areas (SPAs) where an overlap with the licence area occurs are as follows:

Clonakilty Bay SPA (004081)

- Shag (Phalacrocorax aristotelis) [A018]
- Shelduck (Tadorna tadorna) [A048]
- Dunlin (Calidris alpina) [A149]
- Black-tailed Godwit (Limosa limosa) [A156]
- Curlew (Numenius arquata) [A160]
- Wetland and Waterbirds [A999**]**

Courtmacsherry Bay SPA (004219)

- Great Northern Diver (Gavia immer) [A003]
- Shelduck (Tadorna tadorna) [A048]
- Wigeon (Anas penelope) [A050]
- Red-breasted Merganser (Mergus serrator) [A069]
- Golden Plover (Pluvialis apricaria) [A140]
- Lapwing (Vanellus vanellus) [A142]
- Dunlin (Calidris alpina) [A149]
- Black-tailed Godwit (Limosa limosa) [A156]
- Bar-tailed Godwit (Limosa lapponica) [A157]
- Curlew (Numenius arquata) [A160]
- Black-headed Gull (Chroicocephalus ridibundus) [A179]
- Common Gull (Larus canus) [A182]
- Wetland and Waterbirds [A999]

Old Head of Kinsale SPA (004021)

- Kittiwake (*Rissa tridactyla*) [A188]
- Guillemot (*Uria aalge*) [A199]

Sovereign Islands SPA (004124)

- Cormorant (*Phalacrocorax carbo*) [A017]

Records are also present for a number of Annex IV species within the survey area and its environs. A separate Annex IV risk assessment has been prepared to assess the potential for impacts on Annex IV species.

The SISAA (MERC, 2024a) provided as part of this application has indicated that potential for impacts on the following QIS and SCIs for European sites are:

Lough Hyne Nature Reserve and Environs SAC (000097)

- Large shallow inlets and bays [1160]

Roaringwater Bay and Islands SAC (000101)

- Large shallow inlets and bays [1160]
- *Phocoena phocoena* (Harbour Porpoise) [1351]
- *Lutra lutra* (Otter) [1355]
- *Halichoerus grypus* (Grey Seal) [1364]

Clonakilty Bay SPA (004081)

- Shelduck (*Tadorna tadorna*) [A048]
- Dunlin (*Calidris alpina*) [A149]
- Black-tailed Godwit (*Limosa limosa*) [A156]

- Curlew (*Numenius arquata*) [A160]

Courtmacsherry Bay SPA (004219)

- Great Northern Diver (*Gavia immer*) [A003]
- Shelduck (*Tadorna tadorna*) [A048]
- Wigeon (*Anas penelope*) [A050]
- Red-breasted Merganser (*Mergus serrator*) [A069]
- Golden Plover (*Pluvialis apricaria*) [A140]
- Lapwing (*Vanellus vanellus*) [A142]
- Dunlin (*Calidris alpina*) [A149]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Curlew (*Numenius arquata*) [A160]
- Black-headed Gull (*Chroicocephalus ridibundus*) [A179]
- Common Gull (*Larus canus*) [A182]

Mitigation measures to avoid impacts on the aforementioned QIs and SCIs were subsequently proposed in the Natura Impact Statement (NIS) prepared for the proposed project (MERC, 2024b).

Additional designations (NHAs, pNHAs, Ramsar sites)

There are no NHAs within the zone of Influence of the proposed project.

A number of pNHAs are present within the proposed project location. Those with a marine component overlap with the boundaries of the European sites considered to be within the ZoI of the proposed project. The same criteria for assessing impacts on European habitats and associated species (source-path-receptor) as detailed in the SISAA (MERC 2024a) also apply to these pNHAs.

No Ramsar sites overlap with the proposed licence areas or are considered to be within the ZoI of the proposed project.

Non-statutory Environmental Assessment

Population and Human Health

ADCP deployment will be fully marine. Minor inconvenience may be encountered by fishing vessel operators due to location of the ADCP on the seabed within fishing areas but this will be temporary and for a short time period. A notice to mariners will be published in advance of any ADCP deployments to alert mariners of their location. There is no potential for pollution. ADCP deployment does not have the potential to impact on human health by any means.

Vessel operations: No on-site vessel fuelling will take place and there is no further use of hydrocarbons associated with the proposed project. As such the project does not have the potential to lead to accidental hydrocarbon spills. ADCP deployment is required for modelling purposes to inform the future design and installation of waste water treatment which will in time provide positive benefits to the human health of the general public residing in this area.

Bathymetric surveys: Multibeam, single-beam and LiDAR surveys, or a combination of them, may be conducted over intertidal areas of the proposed licenced areas. None of the aforementioned surveys have the potential to impact human health in any way.

Biodiversity

Benthic habitats

The benthic habitat within Areas B,C,D,E and F is dominated by shallow sublittoral mixed sediment. Within Area A, a mosaic of habitats including shallow sublittoral mixed sediment, shallow sublittoral rock and biogenic reef and shallow sublittoral sand are present.

Within the SAC areas, finer scale mapping, to support the setting of Conservation Objectives, is available. This mapping shows a range of soft sediment benthic communities, within the proposed licence areas. Within area E (Lough Hyne and Environs Nature Reserve SAC) and area F (Roaringwater Bay and Islands SAC) two sensitive marine communities are present (*Zostera*-dominated marine communities and maërl-dominated marine communities). These two marine community types are an attribute for the conservation objectives for the marine Annex I habitat "Large Shallow inlets and Bays" within these two sites. The deployment of ADCPS within or adjacent to (within 100m) of these sensitive communities may lead to negative impacts of their conservation objectives.

None of the additional benthic communities mapped for the proposed licence areas are sensitive to the deployment of ADCPS and only temporary sediment disturbance is considered possible.

Mitigation measures to avoid impacts on the aforementioned QI were subsequently proposed in the NIS prepared for the proposed project (MERC, 2024b).

Coastal and terrestrial habitats

Not relevant. The proposed project is entirely within the intertidal or subtidal marine environment and no direct or indirect links to coastal, freshwater or terrestrial habitats are possible.

Avifauna

The proposed project area incudes both exposed and sheltered marine areas suitable for breeding and foraging waterbirds and seabirds. A number of the intertidal areas provide important foraging areas for wintering waterfowl and waders. The wider open water areas provide foraging habitat for seabirds from a number of sites off the coast of Ireland.

Following a full review of the available data and the potential for impact on bird species, the SISAA (MERC, 2024a) concluded that there was potential for vessel induced disturbance to wintering water birds within Courtmacsherry Bay SPA and Clonakilty Bay SPA which form an SCI for a number of bird species during bathymetric surveys.

Mitigation measures to avoid impacts on the aforementioned SCIs were subsequently proposed in the NIS prepared for the proposed project (MERC, 2024b).

Marine Mammals

The data shows that, a number of cetacean species have been recorded within the proposed five licenced areas, or within close proximity (<1km of them). This includes Harbour porpoise (*Phocoena phocoena*), Bottlenose dolphin (*Tursiops truncates*), Minke whale (*Balaenoptera acutorostrata*), Humpback whale (*Megaptera novaeangliae*) and Fin whale (*Balaenoptera physalus*). Additional species, including Killer whale (*Orcinus orca*) and Rosso's dolphin (*Grampus griseus*) are also frequently recorded from the waters adjacent to the proposed licenced areas (>1km).

The SISAA concluded that the proposed project had the potential to impact on the QI's for Harbour porpoise within Roaringwater Bay and Islands SAC. A separate Annex IV Risk Assessment (MERC, 2024c) prepared for the project also concluded the proposed project had the potential to impact Harbour porpoise within Roaringwater Bay and Islands SAC and on additional Annex IV species.

The data also shows that Common Seal (*Phoca vitulina*) and Grey Seal (*Halichoerus grypus*), also listed on Annex II of the EU Habitats Directive are recorded throughout all of the proposed licenced areas, although records for Common Seal are low.

The SISAA (MERC, 2024a) concluded impacts on grey seal QI's within Roaringwater Bay and Islands were possible as a result of vessel induced disturbance close to haul out sites for this species.

Mitigation measures to avoid impacts on the aforementioned QI were subsequently proposed in the NIS prepared for the proposed project (MERC, 2024b). The Annex IV risk assessment (MERC 2024c) proposed mitigation to avoid impacts on additional Annex IV cetacean species.

Fish

Commercial fisheries

- Pot fishing occurs within the subtidal areas of all of the proposed licence areas. See figure 2.
- A dredge fishery occurs within sections of areas A (surf clam) and B (surf clam and cockle). See figure 2
- An extensive Scallop dredge fishery is present within Roaringwater Bay (Area F). See figure 2
- Periwinkle Harvesting Collecting Sites are present within discrete areas of sections A and B. These are outside of the range of the proposed surveys.
- Gill netting occurs around Sherkin Island (Area F) within Roaringwater Bay.
- Mixed demersal bottom trawling occurs at the southern section of (Area F).

Nursery grounds for Horse mackerel, Mackerel and Whiting and Nursery spawning grounds for Whiting are present across the proposed licence areas and the adjacent seas.

The proposed project may cause temporary disturbance to those operating these fisheries should they be operating during the proposed survey duration. However, this would be limited to temporary disturbance over a number of days. The potential for gear snagging is possible should ADCP deployment occur within dredge fisheries areas (Areas A, B and F). Measures to avoid this are detailed in the summary of mitigations and measures at the end of this table.

No disturbance or damage to the fishery itself or any nursery or spawning grounds are considered possible.

Annex II fish species

The proposed project is outside of the zone of influence of any Annex II fish species so no impacts are considered possible

Aquaculture

There is an aquaculture licenced site (pacific oyster) located within proposed licence area A (inner Kinsale Harbour), see Figure 2, and across extensive areas of Roaringwater Bay (Blue Mussel, Pacific Oyster, European Flat Oyster, Great Atlantic Scallop, Queen Scallop, Stony Sea Urchin, Red Seaweeds, Green Seaweeds and Brown Seaweeds), see figure 3. There are no other aquaculture licenced areas within any of the additional four licenced

areas. Multibeam surveys over the intertidal area will, by necessity, avoid the aquaculture licence areas within Kinsale Harbour and Roaringwater Bay therefore no impact is possible.

Water, Air and Climate

While some sediment mobilisation will occur this will be temporary and short lived and does not have the potential to impact overall water quality.

While emissions to air as a result of vessel exhausts is unavoidable the level of such emissions would not be significantly above background levels in this area and would not have the potential to lead to Air Quality standards being exceeded. Therefore no Likely significant effects to air quality are anticipated. No waste production is associated with the proposed project.

Other than indirect impacts on climate change resulting from the use of vessel fuel the project does not have the potential to impact climate change trends.

Cultural heritage

A review of the National Monuments Service Historic Environment viewer and Wreck viewer has been carried out. The review indicates a number of historic wrecks within and adjacent to the licence areas (Figure 5). These areas will be avoided to ensure no impact on cultural heritage occurs.

Material Assets

No potential for any interaction with material assets has been identified. No infrastructure (e.g. subsea electrical or telecoms cables) or other marine based infrastructure is located within any of the proposed licence areas.

Cumulative impacts

Cumulative impacts were assessed as part of the preparation of the SISAA (MERC, 2024). This report indicated five projects within the potential to give rise to in-combination effects.

Mitigation measures to avoid impacts related to in-combination effects were subsequently proposed in the NIS (MERC, 2024b)

Summary of mitigations: Biodiversity

1. Cetaceans

NPWS (2014) provides guidance to manage the risk to marine mammals from man-made sound sources in Irish waters. This document provides guidance and mitigation measures to address key potential sources of anthropogenic sound that may impact negatively on marine mammals in Irish waters. The guidance set out in NPWS (2014), relates to geophysical acoustic surveys (seismic, multibeam and single beam surveys) and should be fully implemented as detailed below.

1. A qualified and experienced marine mammal observer (MMO) shall be appointed to monitor for marine mammals and to log all relevant events using standardised data forms.
2. Acoustic surveying using the geophysical survey equipment specified for this project shall not commence if marine mammals are detected within a 500m radial distance of the sound source intended for use, i.e., within the Monitored Zone. A 500m zone is considered appropriate as empirical evidence[1] by the authors of this report has demonstrated that seals do not abandon their haul out sites unless approached within less than 200m of the site.

<u>Pre-Start Monitoring</u>

Sound-producing activities shall only commence in daylight hours where effective visual monitoring, as performed and determined by the MMO, has been achieved. Where effective visual monitoring, as determined by the MMO, is not possible the sound-producing activities shall be postponed until effective visual monitoring is possible.

[1] Surveys, conducted on behalf of Bord Iascaigh Mhara, of seal disturbance at haul out sites as a result of fishing activity (potting) at haul out sites in Roaringwater Bay in 2015.

An agreed and clear on-site communication signal must be used between the MMO and the Works Superintendent as to whether the relevant activity may or may not proceed, or resume following a break (see below). It shall only proceed on positive confirmation with the MMO.

The MMO shall conduct pre-start-up constant effort monitoring at least 30 minutes before the sound-producing activity is due to commence. Sound-producing activity shall not commence until at least 30 minutes have elapsed with no marine mammals detected within the Monitored Zone by the MMO.

This prescribed Pre-Start Monitoring shall subsequently be followed by a Ramp-Up Procedure which should include continued monitoring by the MMO.

Ramp-Ip Procedure

In commencing an acoustic survey operation using the above equipment, the following Rampup Procedure (i.e., "soft-start") must be used, including during any testing of acoustic sources, where the output peak sound pressure level from any source exceeds 170 dB re: 1µPa @1m:

(a) Where it is possible according to the operational parameters of the equipment concerned, the device's acoustic energy output shall commence from a lower energy start-up (i.e., a peak sound pressure level not exceeding 170 dB re: 1µPa @1m) and thereafter be allowed to gradually build up to the necessary maximum output over a period of 20 minutes.

(b) This controlled build-up of acoustic energy output shall occur in consistent stages to provide a steady and gradual increase over the ramp-up period.

(c) Where the acoustic output measures outlined in steps (a) and (b) are not possible according to the operational parameters of any such equipment, the device shall be switched "on" and "off" in a consistent sequential manner over a period of 20 minutes prior to commencement of the full necessary output.

In all cases where a Ramp-Up Procedure is employed the delay between the end of ramp-up and the necessary full output must be minimised to prevent unnecessary high-level sound introduction into the environment.

Once the Ramp-Up Procedure commences, there is no requirement to halt or discontinue the procedure at night-time, nor if weather or visibility conditions deteriorate nor if marine mammals occur within a 500m radial distance of the sound source, i.e., within the Monitored Zone.

Breaks in sound output

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

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

Reporting

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

2. Grey seal

In line with the guidance to manage the risk to marine mammals (NPWS, 2014), the mitigation proposed in section 6.1 for Cetacean species are also proposed for Grey seal.

In addition, it is proposed that the survey vessel should not approach haul out sites for Grey seal closer than 100m as observed by the MMO. It should be noted that the survey vessel will be moving through the intertidal area during high water. At this stage, seals will normally have abandoned their intertidal haul out sites during this timeframe due to the tidal state.

3. Wintering waterbirds

Clonakilty Bay SPA and Courtmacsherry Bay SPA are designated for a range of wintering water birds. Vessel operations close to intertidal foraging habitats for wintering waterbirds within these sites should not take place during the months of September through March.

4. Benthic habitats

Fixed ADCP deployment should not be permitted to take place over *Zostera*-dominated communities or maërl-dominated communities within Roaringwater Bay SAC and Lough Hyne and environs SAC. Reference should be made to the most recently available NPWS marine community mapping for these community types in advance of any surveys and all fixed ADCP deployment should be at least 100m away from the spatial boundary given for these community types.

5. In-combination effects

Five projects were identified with the same or very similar underwater noise/disturbance effects. It is therefore proposed that the proposed project should not take place during the same time period as any of the following five projects:

- FS007616: Ruby Offshore Energy Ltd.
- LIC240006: Department of the Environment, Climate & Communications
- FS007471: Floating Cork Offshore Wind Ltd.
- FS007431: Tulca Offshore Array Ltd.
- FS007575: Kinsale Offshore Wind Ltd.

Summary of mitigations: Humans

Additional mitigation to avoid impacts on fishers will include the following measures:

Where ADCP deployment is required within the dredge fisheries sections within Areas A, B and F, fishers will be consulted in advance to ensure no risk of snagging occurs.

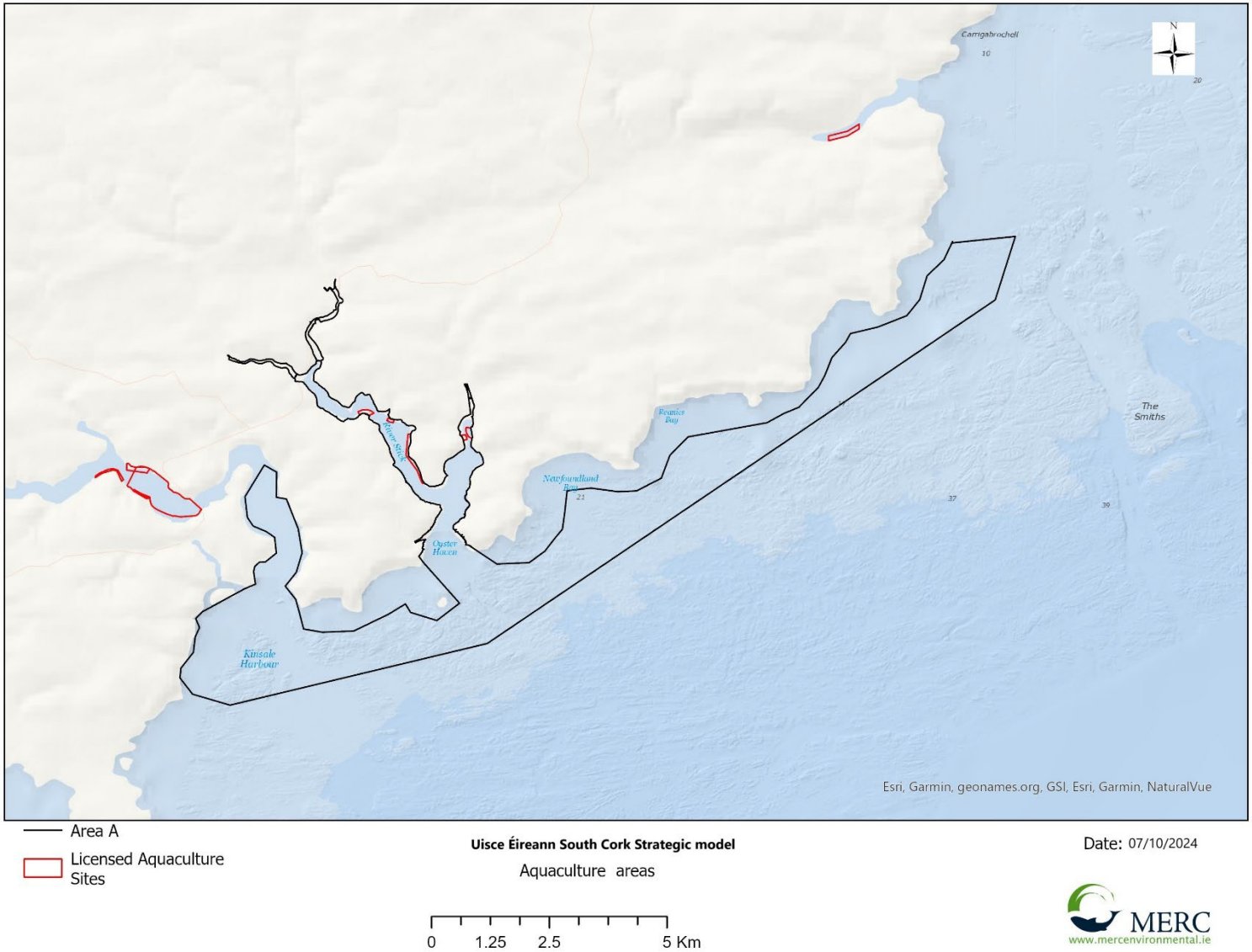

Figure 2. Aquaculture areas within Area A

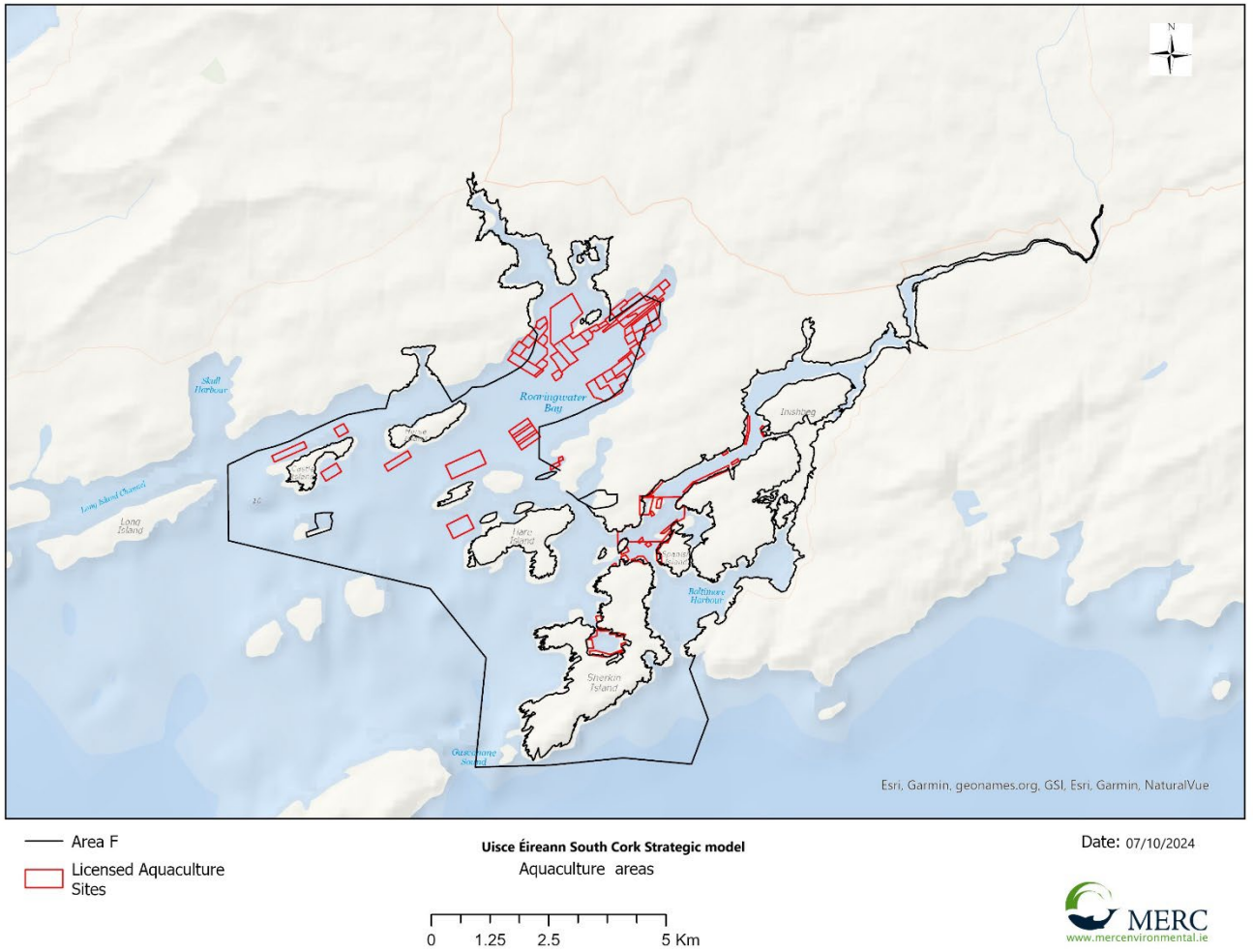

Figure 3. Aquaculture areas within Area F

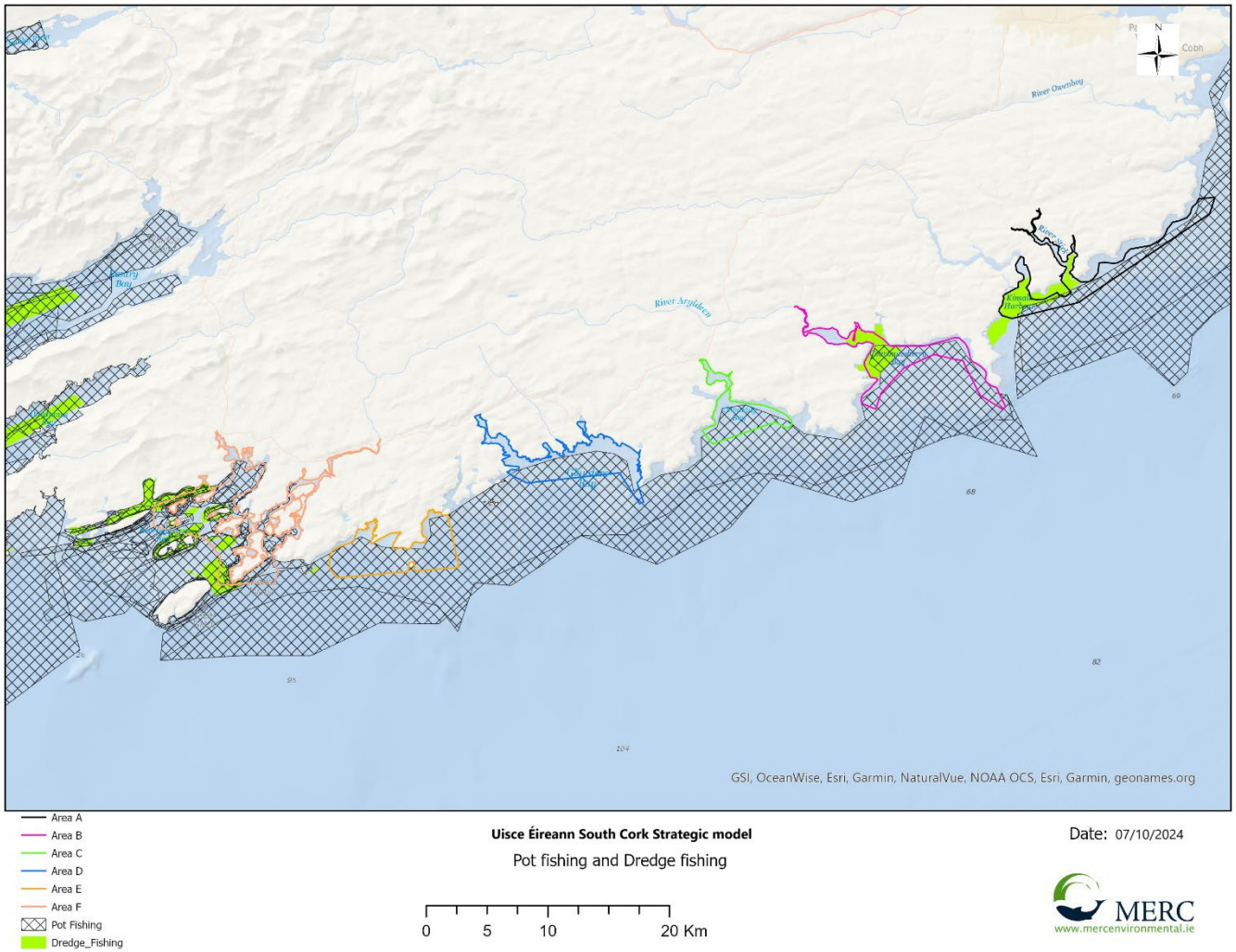

Figure 4. Pot and dredge fisheries within MUL areas

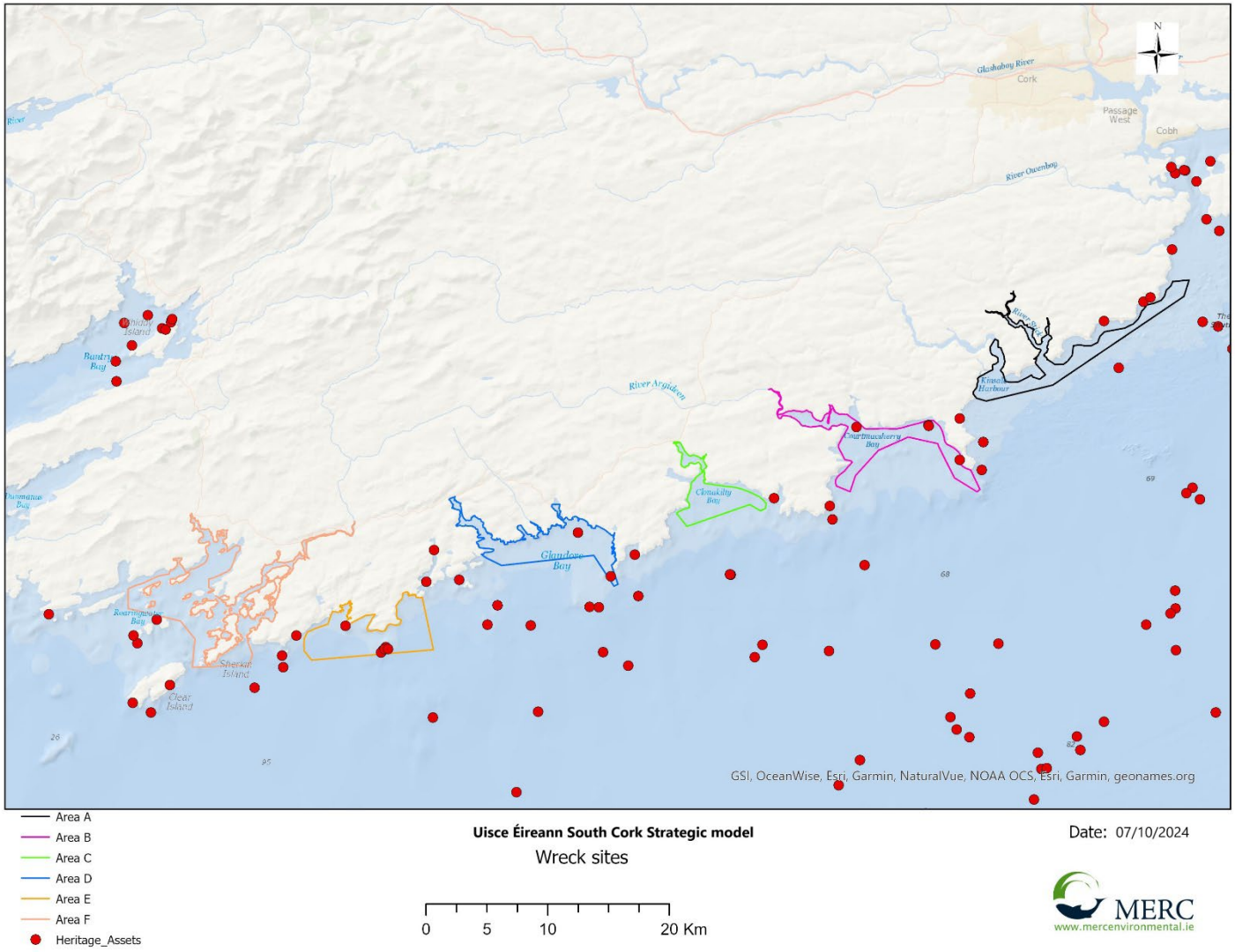

Figure 5. Historic Wreck sites within MUL areas

6. Conclusions

6.1. EIA Directive (not of a class)

The proposed project is not of a class whereby mandatory Environmental Impact Assessment (EIA) is required. Projects which do not meet the threshold may still require an EIA if the project is likely to have significant effects on the environment. This AIMU report has assessed the implications of the project, alone and in-combination with other projects on the receiving environment. It concludes that, based on the scale and scope of the proposed project alone and in combination with other projects and plans no impact on the receiving environment is likely provided the mitigation proposed is implemented. Therefore EIA is not required.

6.2. WFD Directive

The key objectives of the WFD are set out in Article 4 of the Directive. It requires Member States to use their River Basin Management Plans and Programmes of Measures to protect and, where necessary, restore water bodies in order to reach good status, and to prevent deterioration. This AIMU report has assessed the implications of the project, alone and in-combination with other projects on the receiving environment. It concludes that, based on the scale and scope of the proposed project alone and in combination with other projects and plans no impact on the any receiving waterbody will occur. Furthermore, the proposed project aligns with the WFD objectives as set out in Article 4 by facilitating projects that aim to improve waste water discharges to the receiving waterbodies in the future.

6.3 MSFD Directive

The MSFD aims to achieve Good Environment Status (GES) for all marine waters in Europe, and to protect the resource base for marine related economic and social activities. To achieve this goal of GES, the MSFD has set out a programme of measures to address identified stressors to achieving GES.

This AIMU report has assessed the implications of the project, alone and in-combination with other projects on the receiving environment (table 4). It concludes that, based on the scale and scope of the proposed project alone and in combination with other projects and plans, no impact on marine environment in possible. Furthermore, the proposed project aligns with the MSFD objectives by facilitating projects that aim to improve waste water discharges to the receiving waterbodies in the future.

Table 4. MSFD Analysis

Descriptor	Analysis	Assessment
Descriptor 1: Biodiversity is maintained	Table 3 of this AIMU provides a description of the biodiversity baseline of the proposed project location and its environs. In addition, a separate SISAA and Annex IV Risk Assessment were prepared for this project. All of which examined the potential for impact on various elements of the biodiversity of the proposed project area and potential for project related impacts on them. With the exception of potential impacts on selected marine mammals and sensitive benthic habitats no potential for impact on biodiversity was recorded. Mitigation to ensure no impact on marine mammals or sensitive benthic habitats occurred was proposed in this AIMU, the Natura Impact Statement and the Annex IV Risk Assessment.	Provided the mitigation outlined in Table 3 of this AIMU is adhered to no potential for impact on this descriptor is considered possible.
Descriptor 2: Non-indigenous species do not adversely alter ecosystems	No element of the proposed project has been identified that has the potential to introduce or spread non-indigenous species.	No potential for impact.
Descriptor 3: Populations of commercial fish and shellfish species are healthy	Commercial fishing occurs within the proposed project area. This AIMU (Table 3) has considered impacts on commercial fisheries and has not identified any potential for impact.	No potential for impact.
Descriptor 4: Food webs ensure long-term abundance and reproduction of species	No project related impacts with the potential to impact food webs or affect long-term abundance and/or reproduction of species is considered possible.	No potential for impact.
Descriptor 5: Eutrophication is reduced	No impacts relative to eutrophication are possible.	No potential for impact.
Descriptor 6: Sea floor integrity ensures the proper functioning of ecosystems	The proposed project has the potential to impact sensitive *Zostera* and maërl-dominated communities should ADCPs be deployed on these habitats or within 100m of them. Mitigation to ensure no impact on these sensitive benthic habitats occurred was proposed in this AIMU, and the Natura Impact Statement.	Provided the mitigation outlined in Table 3 of this AIMU is adhered to no potential for impact on this descriptor is considered possible.
Descriptor 7: Permanent alteration of hydrographical conditions does not adversely affect ecosystems	The proposed project does not have the potential to cause any hydrographical changes.	No potential for impact.

Descriptor 8: Concentrations of contaminants give no pollution effects	The proposed project does not have the potential to lead to the introduction of any contaminants.	No potential for impact.
Descriptor 9: Contaminants in seafood are at safe levels	The proposed project does not have the potential to add to or alter contaminants in the seafloor.	No potential for impact.
Descriptor 10: Marine litter does not cause harm	The proposed project does not have the potential to lead to the littering.	No potential for impact.
Descriptor 11: Introduction of energy (including underwater noise) does not adversely affect the ecosystem	Acoustic noise will be generated during bathymetric survey operations. As a result, mitigation to ensure no impact on marine mammals occurred was proposed in this AIMU, the NIS and the Annex IV Risk Assessment.	Provided the mitigation outlined in Table 3 of this AIMU is adhered to no potential for impact on this descriptor is considered possible.

8. National Marine Planning Framework (NMPF)

The proposed project is considered to have limited potential impact on the overarching marine planning policies of the NMPF. Nonetheless, a review of these policies relative to the proposed project has been carried out and is documented in Table 5 which indicates how the proposed project will be compliant with the NMPF.

The NMPF sets out Overarching Marine Planning Policies (OMPPs) that will apply to all marine activities or development. These include policies in relation to, *inter alia*, co-existence with biodiversity, coastal and island communities, and infrastructure.

Table 5 Assessment of compliance with the National Marine Planning Framework (NMPF)

Environmental-Ocean Health	
Biodiversity & Protected Marine Sites	
Biodiversity	The project is supported by the following documents: ● Supporting Information for Screening for Appropriate Assessment (SISAA) ● Annex IV Risk Assessment ● Assessment of Impact on Maritime Usage Report (AIMU) The conclusion of the SISAA is that there may be potential for adverse effects to the integrity of a number of European sites without mitigation. Similarly the Annex IV Risk Assessment and AIMU concluded that, without mitigation, impacts on biodiversity may be possible. Mitigation was subsequently proposed and is detailed in table 3 of this AIMU, the project NIS and Annex IV Risk assessment. It is considered that provided this mitigation is implemented no impacts on biodiversity will occur.
Protected Marine Sites	As above. Impacts on protected marine sites, without mitigation, were identified in the project SISAA. Mitigation was subsequently proposed and is detailed in table 3 of this AIMU and the project NIS. It is considered that provided this mitigation is implemented no impacts on protected marine sites will occur.
Non-indigenous Species	The SISAA and AIMU did not identify any potential for the introduction of non-indigenous species.
Water Quality	The SISAA and AIMU did not identify potential for impacts on water quality.
Sea-floor and Water Column Integrity	The scale and scope of the project does not have the potential to impact Sea-floor and Water Column Integrity as documented in the AIMU. Mitigation to avoid impacts on sensitive benthic habitats has been proposed in the project NIS and this AIMU.
Marine Litter	The scale and scope of the project does not have the potential to intentionally or accidentally contribute to the impacts on marine litter policy as documented in the AIMU.
Underwater Noise	Acoustic noise will be generated during bathymetric survey operations. As a result, mitigation to ensure no impact on marine mammals occurred was proposed in this AIMU, the NIS and the Annex IV Risk Assessment.
Air quality	Not relevant: The project does not have the potential to impact air quality.

Climate Change	Not relevant: The project does not have the potential to impact climate change.
Economic – Thriving Maritime Economy	
Co-existence	No potential for significant impact. The proposed works are temporary in nature (days). While disturbance to commercial fisheries activity may occur, this disturbance will be of a temporary nature (days) and will not have a significant impact on commercial fishery activity in the area. no other significant activities have been identified.
Infrastructure	No potential for impact on the infrastructure policy. No permanent infrastructure is proposed.
Social – Engagement with the sea	
Access	No access issues have been identified.
Employment	Not applicable. It is considered the Employment Policy 1 is not relevant to the proposed project.
Heritage assets	A review of the Historic Environment Viewer and National monument service wreck viewer (Accessed July 2024) indicated the presence of numerous historic wreck sites within the area. However, the proposed project will have very limited contact with the seabed and ADCP deployment will not be located over any recorded historic wreck site. Therefore, no potential for impact on heritage assets is considered possible.
Rural Coast and Island Communities	The proposed project will ultimately contribute to the improvement of waste water discharges in the proposed licence areas which will improve the quality of the marine environment and ultimately benefit coastal communities.
Seascape and Landscape	No impact possible. All survey instrumentation to be deployed in the subtidal and is temporary.
Social Benefits	The proposed project will ultimately contribute to the improvement of waste water discharges in the proposed licence areas which will improve the quality of the marine environment and ultimately provide social benefits.
Transboundary	No transboundary effects are possible.

The Sectoral Marine Planning Policies for each individual marine sector or activity are detailed in the NMPF. No element of the proposed project is considered contrary to these policies.

7. References

Department of Housing, Local Government and Heritage. National monuments service; wreck viewer. Available at: https://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=89e50518e5f4437abfa6284ff39fd640 Accessed 31.7.2024

Marine Institute (2022). Ireland's Marine Atlas. Available at: https://atlas.marine.ie/#?c=52.2862:-6.4689:11. Accessed 29.7.2024

MERC (2024a). Report to Inform Screening for Appropriate Assessment: Uisce Éireann South Cork Strategic Model.

MERC (2024b). Natura Impact Statement: Uisce Éireann South Cork Strategic Model.

MERC (2024c). EU Habitats Directive: Annex IV Risk Assessment: Uisce Éireann South Cork Strategic Model

Irish Ramsar Wetlands Committee. Ramsar sites Ireland. Available at: http://irishwetlands.ie/irish-sites/ Accessed 27.7.2024.