MERC Consultants
environmental and conservation services

Assessment of Impact on the Maritime Usage

Uisce Éireann Sligo and Donegal Strategic Model

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

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1. Introduction

Uisce Éireann wish to conduct a strategic modelling study of water currents within Donegal Bay, Sligo Bay, Killala Bay and their adjoining waters. A foreshore license application for this modelling was submitted in 2022 (Foreshore refence number: FS007553). The original licence application was for the deployment of static Acoustic Doppler Current Profilers (ADCPs) and associated ancillary instrumentation. Uisce Éireann now wish to expand the survey to include the gathering of bathymetric and tidal data.

The proposed programme of surveys includes vessel based assessment of bathymetry using a combination of single-beam, multibeam and LiDAR surveys, surface water sampling and the deployment of tidal gauges.

The proposed project is located within five separate locations off the coast of counties Sligo and Donegal, labelled areas A, B,C, D and E here for ease of reference (**Figure 1**).

Area A covers an area from Carrigan Head east to Dorrin Point, encompassing Fintra Bay, McSwynes Bay, Iver Bay and the adjacent waters out to approximately the 50m contour.
Area B covers an area of Donegal Bay from Dorrin Point south to Aughrus Point and adjacent waters out to approximately the 30m contour.
Area C Includes the area running from Mullaghmore Head south to Streedadh Point and adjacent water out to the 30m contour at its furthest point.
Area D Includes Sligo Bay, including Sligo Harbour and Ballysadare Bay out to the 20 m contour at its furthest point.
Area E Covers Killala Bay out to just beyond the 30m contour.

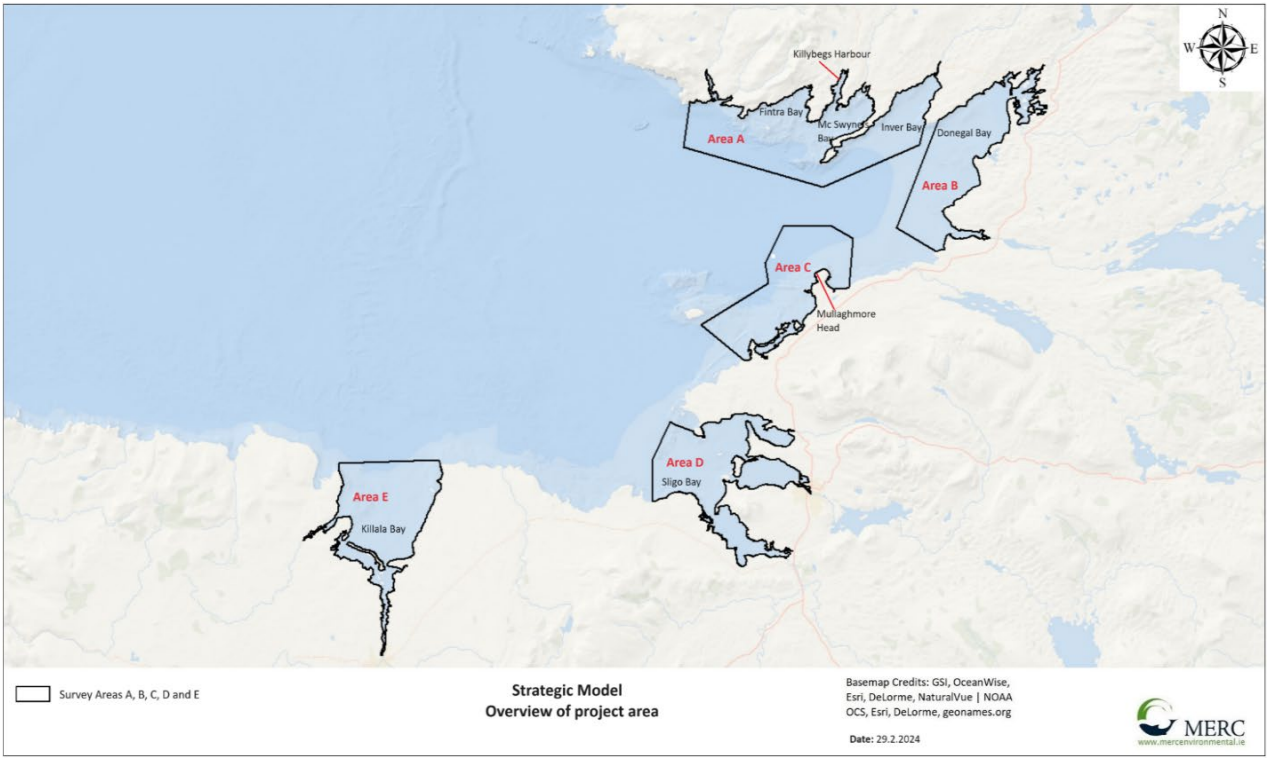

Figure 1. Overview of proposed project site.

1.2 Objectives of this report

To allow the Competent Authority to fully assess all potential impacts of the proposed maritime usage, this Assessment of Impact on the Maritime Usage (AIMU) report has examined the potential for project related impacts on the environment including the following elements:

- Assessment of impact on the environment with respect to the EIA Directive
- Assessment of conformity relative to the key objectives of the Water Framework Directive (WFD)
- Assessment of conformity relative to the key objectives of the Marine Strategy Framework Directive (MSFD)
- Assessment of consistency with the National Marine Planning Framework (NMPF)

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 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.

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. Details of the Proposed Project

A description of the proposed equipment to be used is given below and summarised in **Table 1**.

3.1 Multibeam echosounder

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).

3.2 Single-beam sonar

Single-beam sonar (SBS) 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.

3.3 Light Detection And Ranging (LiDAR)

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 such as the intertidal.

In the present case, bathymetric assessment of the intertidal area only is required, as information for the subtidal area is already available. LiDAR is likely to be the method used for this assessment, but the possibility of using a shallow draft vessel over the intertidal area on a high tide to conduct multibeam or single-beam surveys is also possible.

3.4 Vessel mounted Acoustic Doppler Current Profiler ADCP) surveys

An Acoustic Doppler Current Profiler (ADCP) is a hydroacoustic current meter that measures water current velocities over a depth range using the Doppler effect of sound waves scattered back from particles within the water column. A foreshore licence has already been obtained for the deployment of fixed ADCPs within trawl resistant frames at 26 discrete locations within the proposed project area. However, given the shallow depth and navigational issues additional vessel mounted ADCP surveys are proposed as part of the current programme of works. Vessel mounted (VM) ADCPs work on the same principle as the fixed ADCPs but obtain less data. VMADCP measurements would be taken every half-hour and averaged over 13 hours of a mean spring and mean neap tidal cycle.

It is proposed that VMADCP data gathering will take place in the following areas:

- Ballysadare Bay (VMADCP1 to VMADCP2)
- Garavogue Estuary channel between Rosses Point and Sligo Docks (VMADCP3 to VMADCP5)

- Inner Donegal Bay between Donegal Town and Donegal Harbour (VMADCP6 to VMADCP8)
- Inver Bay (VMADCP9 to VMADCP10)
- McSwynes Bay (VMADCP11)
- Killybegs Bay (VMADCP12 to VMADCP13)

3.5 Tidal gauges

Tidal gauges are used to gather precise tidal height data for discrete fixed points. The resulting data can then be extrapolated to a wider area. For the proposed projects it is proposed that the tidal gauge would be mounted on either a galvanized steel pole to the side of a suitable pier or other permanent fixed structure. Installation would 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.

3.6 Ancillary data collection

Additional ancillary data may be collected. This may include the collection of water samples, and data on temperature & Conductivity/Salinity collected through the deployment of a small overboard conductivity, temperature and depth (CTD) meter.

3.7 Vessel

To facilitate the multibeam and single beam surveys (should they be required) and the collection of ancillary data (e.g. CTD data, deployment of tidal gauges) a shallow draft vessel approximately 16m in length will be contracted. An appropriate vessel of this size would typically operate with an inboard diesel engine within a capacity of up to 400hp/300 kW.

Table 1. Summary of scope of works

Element	Method	Frequency	Location
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; indicative locations presented
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	CTD and Dissolved Oxygen (DO) surveys will take place from the vessel. This will involve deploying a Sonde at set intervals 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; indicative locations presented
Bathymetry	Surveying of intertidal areas may require a combination of methods including; Single beam & Multibeam Echosounders, LiDAR, GPS rover.	Once off.	Intertidal areas within MUL Area A, B, C, E
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	Garavogue Estuary at Sligo Port or Sligo WwTP to assess propagation of tidal wave into estuary. ▪ Killybegs Harbour at Killybegs WwTP ▪ Donegal Town ▪ Killala Bay at Ballina WwTP
Vessel details	A shallow draft vessel likely to be no larger than 16m length, 6m beam and 2m draught.		

4. Methods

A report containing Supporting Information for Screening for Appropriate Assessment (MERC, 2024a) and Annex IV Risk Assessment (MERC, 2024b) have also been carried out to support this licence application. Both reports were consulted during the preparation of this AIMU report.

This AIMU report has been prepared with reference to the following European Directives, national legislation and guidance on the provisions of, *inter alia*, the Environmental Impact Assessment Directive.

- Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU (EIA Directive) (Codified Directive).
- Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022).
- Technical Guidance note: Obtaining a licence to carry out specified maritime usages in the Maritime Area under the Maritime Area Planning Act 2021. MARA, 2024 Ver 5.
- European Communities (Birds and Natural Habitats) Regulations 2011. SI No. 477 of 2011.
- Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. European Commission 2018. 7621 final. Office for Official Publications of the European Communities, Luxembourg.
- Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters. Department of Arts, Heritage and the Gaeltacht, 2014.

A review of the baseline data was carried out by referring to the following reports and datasets:

- Department of Housing, Local Government and Heritage. National monuments service; wreck viewer.
- Integrated Mapping for the Sustainable Development of Ireland's Marine Resource (INFOMAR) 2024. Bathymetry, backscatter, sediment samples and sediment classification layers.
- Marine Institute (2022). Ireland's Marine Atlas: Fishing activity and Fish Species Distribution Layers
- Irish Ramsar Wetlands Committee. Ramsar sites Ireland.
- NPWS Designations viewer (SACs, SPAs, NHAs and pNHAs)
- Biodiversity Data Centre Maps: Habitats and Species.
- MERC (2024a). Supporting Information for Screening for Appropriate Assessment: Uisce Éireann Sligo and Donegal Strategic Model.
- MERC (2024b). EU Habitats Directive: Annex IV Risk Assessment: Uisce Éireann Sligo and Donegal Strategic Model.

5. Environmental Report (EIA Directive: not of a class)

5.1 Background

The objective of Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (the Environmental Impact Assessment, or EIA, Directive) is to ensure that projects that are likely to have a significant effect on the environment are adequately assessed before they are approved. An EIA is required for all projects detailed in Annex I of the EIA Directive and for all projects detailed in Annex II where the proposed project is likely to have significant effects on the environment. The proposed project does not fall within the classes defined under Annex I or Annex II of the EIA Directive. Therefore, it is not subject to the provisions of the EIA Directive.

Notwithstanding the fact that the proposed project is not subject to mandatory EIA, this AIMU has assessed the project relative to its potential to impact the receiving environment by virtue, *inter alia*, of its nature, size and location.

As such the following elements have been assessed and an analysis of the assessment is given in table 3 of this report:

- Land & Soils
- Water
- Biodiversity
- Fisheries and Aquaculture
- Air Quality
- Noise & Vibration
- Landscape/Seascape
- Traffic & Transport (including navigation)
- Cultural Heritage (including underwater archaeology
- Population & Human Health
- Major Accidents & Disasters
- Climate
- Waste
- Material Assets
- Interactions

5.2 Assessment of Impact

The Zone of Influence (ZoI) of the proposed project was established in the preparation of the SISAA (MERC, 2024a).

No direct or indirect pathway to freshwater, coastal or terrestrial habitats was established. For this reason the baseline of the receiving environment is focused solely on marine habitats, and species including marine mammals and avifauna that utilise the marine environment.

Table 2 below provides a summary of the environmental baseline and an assessment of the potential for impact on the environment.

6. Environmental Report

Table 2. Environmental baseline and assessment of impact

Environmental baseline
European sites (SAC's and SPA's)
The proposed licence areas overlap with the following European sites: • Donegal Bay (Murvagh) SAC (000133) • Durnish Lough SAC (000138) • Slieve League SAC (000189) • St Johns Point SAC (000191) • Killala Bay/Moy Estuary SPA (004036) • Ballysadare Bay SAC (000622) • Bunduff Lough And Machair/Trawalua/Mullaghmore SAC (000625) • Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC (000627) • Streedagh Point Dunes SAC (001680) • Drumcliff Bay SPA (004013) • Cummeen Strand SPA (004035) • Killala Bay/Moy Estuary SPA (004036) • Ballysadare Bay SPA (004129) • Inishduff SPA (004115) • West Donegal Coast SPA (004150) • Donegal Bay SPA (004151) The Zone of Influence (ZoI) of the proposed project was established in the preparation of supporting information for Screening for Appropriate Assessment (MERC, 2024). This analysis, using a source-path receptor model, demonstrated that the ZoI was limited to the area of the vessel operations, to include the area of ensonification by the multibeam and/or side scan sonar and all European sites designated for Annex II marine mammals associated with European sites which have the potential to utilise the waters within the proposed five areas as shown in figure 1. The ZoI also included all SACs designated for Annex II fish species within 100km of the outer boundary of the proposed project areas and all SPAs designated for waterbirds that utilise the intertidal areas for foraging within the proposed licence areas. For this reason the baseline of the receiving environment is focused solely on marine habitats, and species including avifauna that utilise the marine environment. The bathymetry and predominant habitat types in the area, including within the licence area, is known from Infomar data. Additional data sources include NPWS marine community mapping for areas within European sites designated for marine Annex I habitats and from Water Framework Directive data for transitional and coastal water bodies (i.e. Killybegs Harbour, Killala Bay, Sligo Bay and the Garavogue Estuary). The marine qualifying interests for the Special Areas of Conservation (SACs) where an overlap with the licence area occurs are as follows: **Donegal Bay (Murvagh) SAC (000133)** • Mudflats and sandflats not covered by seawater at low tide [1140]

- *Phoca vitulina* (Harbour Seal) [1365]

Durnish Lough SAC (000138)

- Coastal lagoons [1150]
- Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]

Slieve League SAC (000189)

- Reefs [1170]
- Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]
- Northern Atlantic wet heaths with Erica tetralix [4010]
- European dry heaths [4030]
- Alpine and Boreal heaths [4060]
- Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]
- Blanket bogs (* if active bog) [7130]
- Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) [8110]
- Calcareous rocky slopes with chasmophytic vegetation [8210]
- Siliceous rocky slopes with chasmophytic vegetation [8220]

St Johns Point SAC (000191)

- Large shallow inlets and bays [1160]
- Reefs [1170]
- Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]
- Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]
- Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]
- Alkaline fens [7230]
- Limestone pavements [8240]
- Submerged or partially submerged sea caves [8330]
- Euphydryas aurinia (Marsh Fritillary) [1065]
- Tursiops truncatus (Common Bottlenose Dolphin) [1349]

Ballysadare Bay SAC (000622)

- Estuaries [1130]
- Mudflats and sandflats not covered by seawater at low tide [1140]
- Embryonic shifting dunes [2110]
- Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]
- Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]
- Humid dune slacks [2190]
- Vertigo angustior (Narrow-mouthed Whorl Snail) [1014]
- Phoca vitulina (Harbour Seal) [1365]

Bunduff Lough And Machair/Trawalua/Mullaghmore SAC (000625)

- Mudflats and sandflats not covered by seawater at low tide [1140]
- Large shallow inlets and bays [1160]
- Reefs [1170]

Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC (000627)

- Estuaries [1130]
- Mudflats and sandflats not covered by seawater at low tide [1140]
- *Phoca vitulina* (Harbour Seal) [1365]

Streedagh Point Dunes SAC (001680)

- Mudflats and sandflats not covered by seawater at low tide [1140]

- Perennial vegetation of stony banks [1220]
- Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]
- Mediterranean salt meadows (Juncetalia maritimi) [1410]
- Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]
- Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]
- Vertigo angustior (Narrow-mouthed Whorl Snail) [1014]

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

Drumcliff Bay SPA (004013)

- Sanderling (Calidris alba) [A144]
- Bar-tailed Godwit (Limosa lapponica) [A157]
- Wetland and Waterbirds [A999]

Cummeen Strand SPA (004035)

- Light-bellied Brent Goose (Branta bernicla hrota) [A046]
- Oystercatcher (Haematopus ostralegus) [A130]
- Redshank (Tringa totanus) [A162]
- Wetland and Waterbirds [A999]

Killala Bay/Moy Estuary SPA (004036)

- Ringed Plover (Charadrius hiaticula) [A137]
- Golden Plover (Pluvialis apricaria) [A140]
- Grey Plover (Pluvialis squatarola) [A141]
- Sanderling (Calidris alba) [A144]
- Dunlin (Calidris alpina) [A149]
- Bar-tailed Godwit (Limosa lapponica) [A157]
- Curlew (Numenius arquata) [A160]
- Redshank (Tringa totanus) [A162]
- Wetland and Waterbirds [A999]

Ballysadare Bay SPA (004129)

- Light-bellied Brent Goose (Branta bernicla hrota) [A046]
- Grey Plover (Grey Plover Pluvialis squatarola) [A141]
- Dunlin (Calidris alpina) [A149]
- Bar-tailed Godwit (Limosa lapponica) [A157]
- Redshank (Tringa totanus) [A162]
- Wetland and Waterbirds [A999]

Inishduff SPA (004115)

- Shag (Phalacrocorax aristotelis) [A018]

West Donegal Coast SPA (004150)

- Fulmar (Fulmarus glacialis) [A009]
- Cormorant (Phalacrocorax carbo) [A017]
- Shag (Phalacrocorax aristotelis) [A018]
- Peregrine (Falco peregrinus) [A103]
- Herring Gull (Larus argentatus) [A184]
- Kittiwake (Rissa tridactyla) [A188]
- Razorbill (Alca torda) [A200]

- Chough (Pyrrhocorax pyrrhocorax) [A346]

Donegal Bay SPA (004151)

- Great Northern Diver (Gavia immer) [A003]
- Light-bellied Brent Goose (Branta bernicla hrota) [A046]
- Common Scoter (Melanitta nigra) [A065]
- Sanderling (Calidris alba) [A144]
- Wetland and Waterbirds [A999]

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. This report has indicated that the potential for impacts on the Annex IV cetacean species are considered possible.

A report containing information to support Screening for Appropriate Assessment has been provided as part of this application. This report has indicated that the potential for impacts on a number of specific European sites designated for Bottlenose dolphin, Harbour porpoise and harbour seal and are considered possible.

Additional designations (NHAs, pNHAs, Ramsar sites)

Inishduff NHA falls within Area A. This site is also an SPA designated for Shag *(Phalacrocorax aristotelis)*.

A number of pNHAs are present within the proposed project location. Those with a marine component that also overlap with the boundaries of the SACs and SPAs considered to be within the ZoI of the proposed project (as assessed in the SISAA) include Slieve League NHA, St. John's Point NHA, Donegal Bay (Murvagh) NHA, Durnesh Lough NHA, Bunduff Lough and Machair/Trawalua/Mullaghmore NHA, Streedagh Point Dunes NHA, Cummeen Strand/Drumcliff Bay (Sligo Bay) NHA, Ballysadare Bay NHA and Killala Bay/Moy Estuary NHA. Erne Estuary/Finner Dunes NHA does overlaps with Donegal Bay SPA. As such potential impacts on these sites have been considered in the SISAA.

Cummeen Strand Ramsar Site (Site code: 842) Overlaps with the boundary of Cummeen Strand SPA. This Ramsar site includes an estuarine section of Sligo Bay important for the arrival point for Brent geese (*Branta bernicla*) and also with internationally important numbers of Ringed plover (*Charadrius hiaticula*). Killala Bay/Moy Estuary Ramsar Site (Site code: 843) overlaps with the boundary of Killala Bay/Moy Estuary SPA. The intertidal flats of this Ramsar site provides important feeding sites for birds. Brent geese overwinter in the bay in internationally important numbers, and regionally or locally important numbers of several species of waterbirds use the site. The information to support Screening for Appropriate Assessment considered both of these SPAs and therefore considered the potential for impact on both Ramsar site and no potential for impacts was foreseen.

Assessment of potential for impact

Population and Human Health

All acoustic surveys will be fully marine. Minor inconvenience may be encountered by fishing vessel operators during survey activities but this will be temporary and for a short time period. There is no potential for pollution. 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. The survey 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.

Biodiversity

Benthic habitats

Subtidal habitat types vary across this wide area. The offshore benthic habitat is dominated by shelf sublittoral sand (in the deeper water approximately 3 to 8 km from the coastline). While a band of shallow sublittoral sand, interspersed with large areas of shallow sublittoral mud and shallow sublittoral rock and biogenic reef are present closer to shore and characterise the majority of the proposed licence areas. 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, geogenic and biogenic reef habitats and other areas where sensitive subtidal communities have been recorded and mapped. Many of the sediment communities described for the area are typical of exposed sublittoral communities. The geogenic reef habitats support a rich and a diverse community dominated by epibenthic species and kelp. While these reef communities are also characteristic of exposed sites, they are vulnerable to physical impact and abrasion. The more sheltered bays and inlets are also home to certain species vulnerable to impact. However, as documented in the SISAA the proposed project will have no interaction with the seabed and therefore no potential for impact is considered possible.

Coastal and terrestrial habitats

Not relevant. The proposed project is entirely marine based when no potential for interaction with coastal or terrestrial habitats.

Avifauna

The sheltered intertidal areas of the numerous inlets and estuaries along the north west coast provide important foraging areas for wintering waterfowl and waders. The wider open water areas provide foraging habitat for seabirds from a wide range of sites across the north west. The high sea cliffs of Slieve League and the offshore islands providing suitable nesting habitat for many seabirds including Fulmar, Cormorant, Shag, Peregrine, Herring Gull, Kittiwake and Razorbill. This area also provides foraging habitat for many sea birds species from additional areas, including SPA's designated for sea birds, from other parts of the Irish coast.

Following a full review of the available data and the potential for impact on bird species, the SISAA (MERC, 2024) concluded that there would be no likely significant effects on bird species within the zone of influence of the proposed project.

Marine Mammals

Donegal Bay, Sligo Bay, Killala Bay are their environs provide important habitat for marine mammals. Bottlenose Dolphin (*Tursiops truncatus*), Common Porpoise (*Phocoena phocoena*), Common Seal (*Phoca vitulina*) and Grey Seal (*Halichoerus grypus*), all of which are listed on Annex II of the EU Habitats Directive occur in this area on a regular basis. In addition to these Annex II species, data compiled from numerous sources and managed by the National Biodiversity Data Centre indicates the use of the area by several other species of cetacean on an occasional basis.

The SISAA (MERC, 2024a) concluded that disturbance related impacts on Harbour seal were possible as a result of the proposed project without mitigation. These impacts were identified as being likely to occur when the shallow draft vessel was operating close to known seal haul out sites within a number of European sites within the ZoI of the proposed project. It also concluded that, while unlikely, it may be possible for underwater noise related impacts to cause behavioural changes to bottlenose dolphin and/or Harbour porpoise should they be present during acoustic surveys.

A separate risk assessment relative to Annex IV species has been carried out (MERC, 2024b) and submitted as part of this application. The risk assessment also considered the potential for underwater noise related impacts

with the potential to cause behavioural changes to bottlenose dolphin and/or Harbour porpoise should they be present during acoustic surveys.

Mitigation measures to address the potential for vessel based disturbance and underwater noise on the identified marine mammals were proposed in the Natura Impact Statement and Annex IV Risk Assessment. These mitigation measures are detailed in the summary of mitigations in this report. It is considered that provided the mitigation proposed in are implemented no potential for impact on any marine mammal will occur.

Fish

Commercial fisheries

The waters within Donegal Bay, Sligo Bay Killala Bay and their environs are used by Ireland's inshore fishing fleet (Figure 2) for line fishing, net fishing, midwater trawling, bottom trawling, dredging and (Ireland's Marine Atlas, 2022). Pot fishing is also carried out over the vast majority of this area.

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

Aquaculture (Finfish: Salmon) takes place within Foreshore Licence Area A (figure 3). Aquaculture Licence sites are also present within Foreshore Licence areas D and E. These areas will be avoided, by navigational necessity, and therefore no potential for impact is possible.

Water, Air and Climate

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. 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 (See figure 4). As the proposed surveys will have no interaction with the seabed, no potential for impact is possible.

Material Assets

As the proposed surveys will have no interaction with the seabed, no potential for impact on material assets is possible.

Cumulative impacts

Cumulative impacts were assessed as part of the preparation of the SISAA (MERC, 2024a). This report indicated that following a review of current sources of information for marine based projects or plans, two projects had the potential for impact without mitigation. These were considered to include two additional projects within the ZoI with the potential to contribute to underwater noise.

Mitigation measures to address the potential for vessel based disturbance and underwater noise were proposed and these mitigation measures are detailed in the summary of mitigations below. It is considered that provided the mitigation proposed in the report is implemented, the potential for the aforementioned in-combination impacts will also be mitigated.

Summary of mitigations

The SISAA (MERC, 2024a) and Annex IV Risk Assessment (MERC, 2024b) carried out in support of this project concluded that without mitigation the proposed project had the potential to impact on Harbour seal, Bottlenose dolphin and Harbour porpoise should they be present in the area during surveys. To mitigate this potential for

impact the following mitigation was proposed in the Natura Impact Statement for the proposed project and is also recommended as part of the AIMU report:

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 mitigation methods should follow the guidance prescribed by the National Parks and Wildlife Service. Specifically, in relation to Geophysical acoustic surveys, such as proposed in this project, the guidance set out in NPWS (2014), as stated below, should be fully implemented.

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

Pre-Start Monitoring

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

Ramp-up Procedure

7. In commencing an acoustic survey operation using the proposed acoustic equipment, the following Ramp-up Procedure (i.e., “soft-start”) must be used, including during any testing of acoustic sources, where the output peak sound pressure level from any source exceeds 170 dB re: 1µPa @1m:
   (a) Where it is possible according to the operational parameters of the equipment concerned, the device’s acoustic energy output shall commence from a lower energy start-up (i.e., a peak sound pressure level not exceeding 170 dB re: 1µPa @1m) and thereafter be allowed to gradually build up to the necessary maximum output over a period of 20 minutes.
   (b) This controlled build-up of acoustic energy output shall occur in consistent stages to provide a steady and gradual increase over the ramp-up period.
   (c) Where the acoustic output measures outlined in steps (a) and (b) are not possible according to the operational parameters of any such equipment, the device shall be switched “on” and “off” in a consistent sequential manner over a period of 20 minutes prior to commencement of the full necessary output.

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

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

Line Changes

10. Where the duration of a survey line or station change will be greater than 40 minutes the activity shall, on completion of the line/station being surveyed, either
(a) shut down and undertake full Pre-Start Monitoring, followed by a Ramp-Up Procedure for recommencement, or
(b) undergo a major reduction in seismic energy output to a lower energy state[1] where the output peak sound pressure level from any operating source is 165-170 dB re: 1µPa @1m, and then undertake a full Ramp-Up Procedure for recommencement.

11. Where the duration of a survey line or station change will be less than 40 minutes the activity may continue as normal (i.e., under full seismic output)

Breaks in sound output

12. 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.

13. 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

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

7. Conclusion. 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 and mitigation measures proposed, no impact on the receiving environment is likely. Therefore EIA is not required.

[1] *It is important that this significant reduction in sound output is to a minimum point (i.e., minimum peak sound pressure level) that in theory remains audible above most ambient sound and shipping noise and yet is also consistent with the Ramp-up Procedure.*

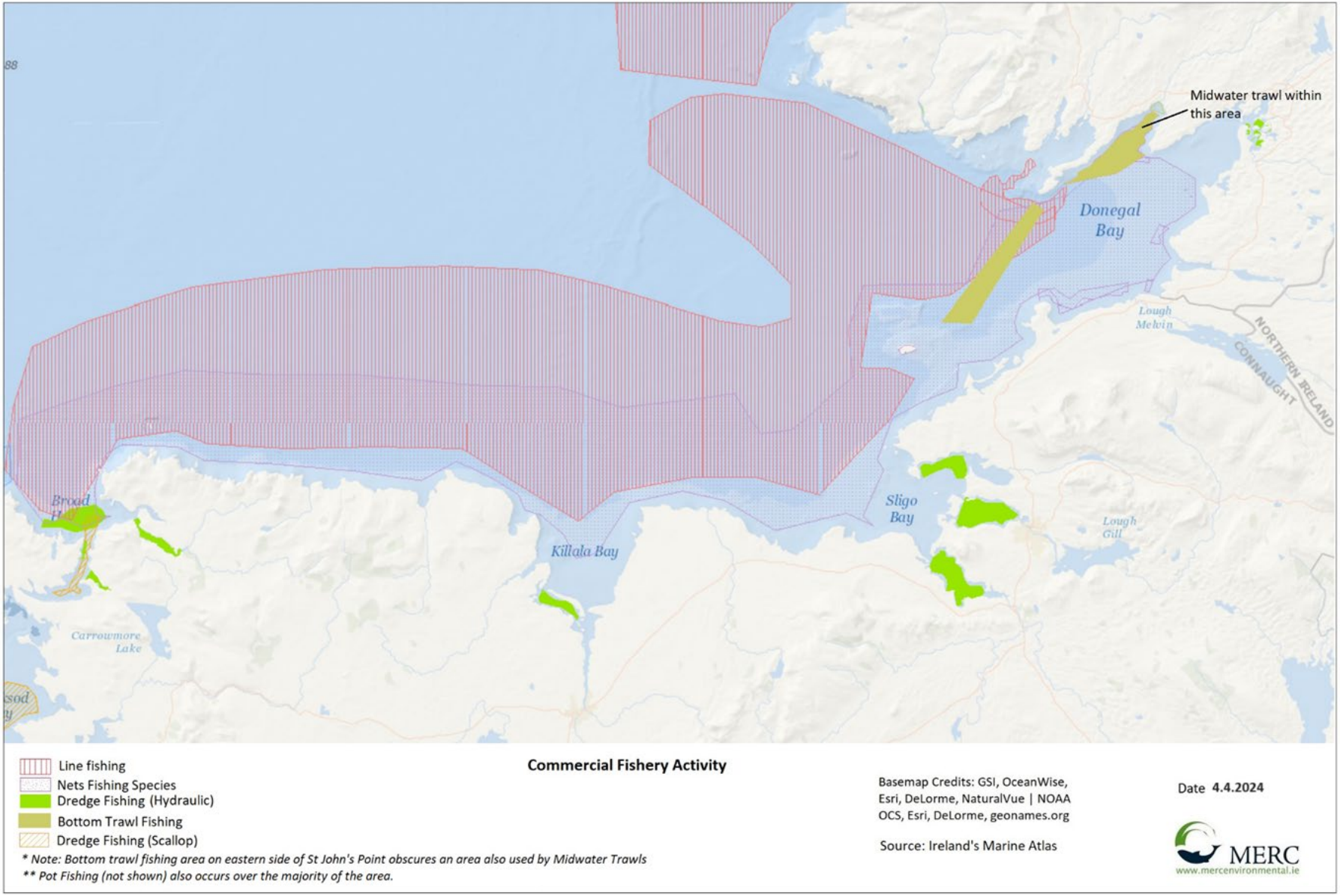

Figure 2. Inshore fishing activity

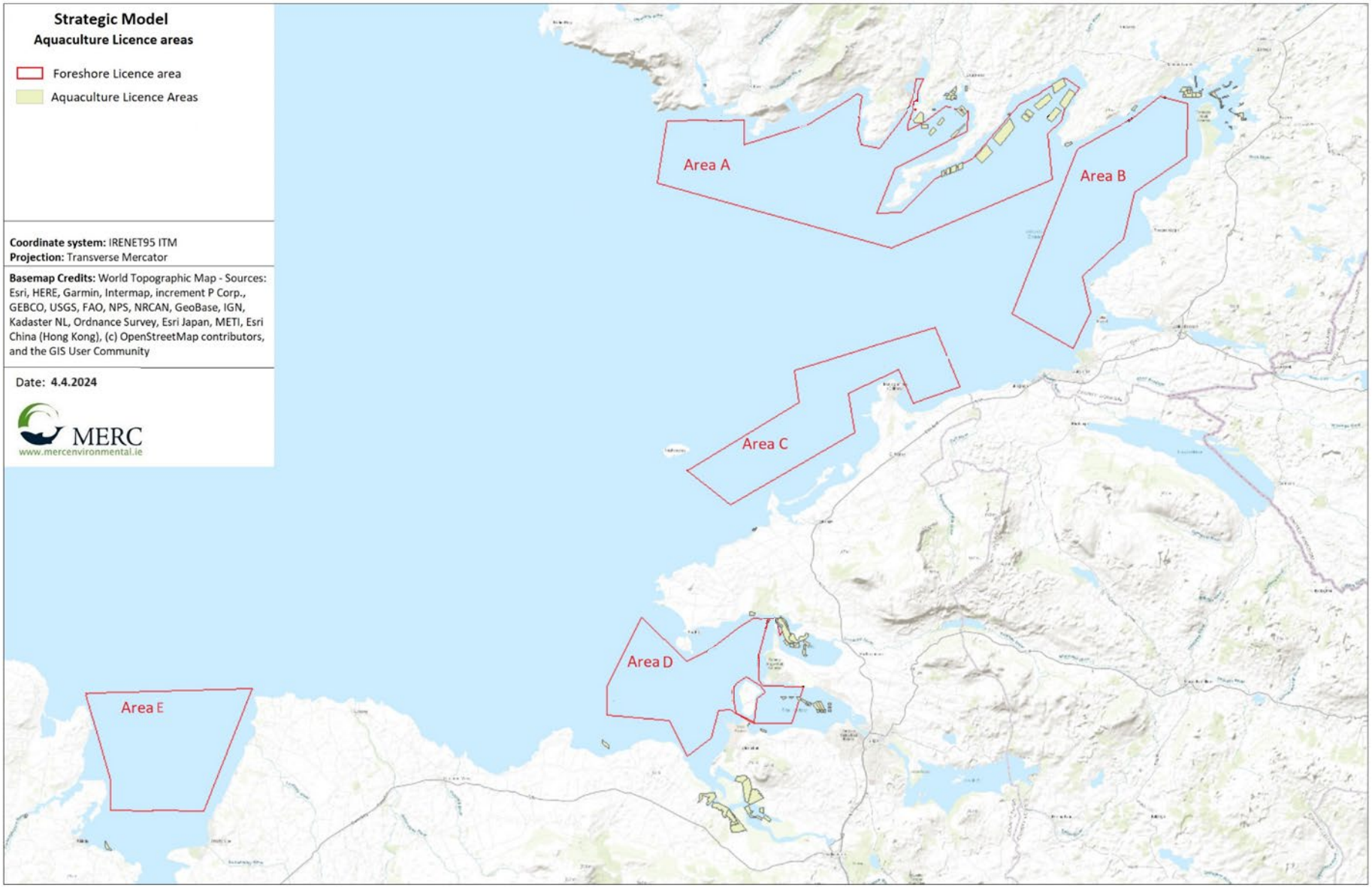

Figure 3. Aquaculture Licence areas within proposed licence areas.

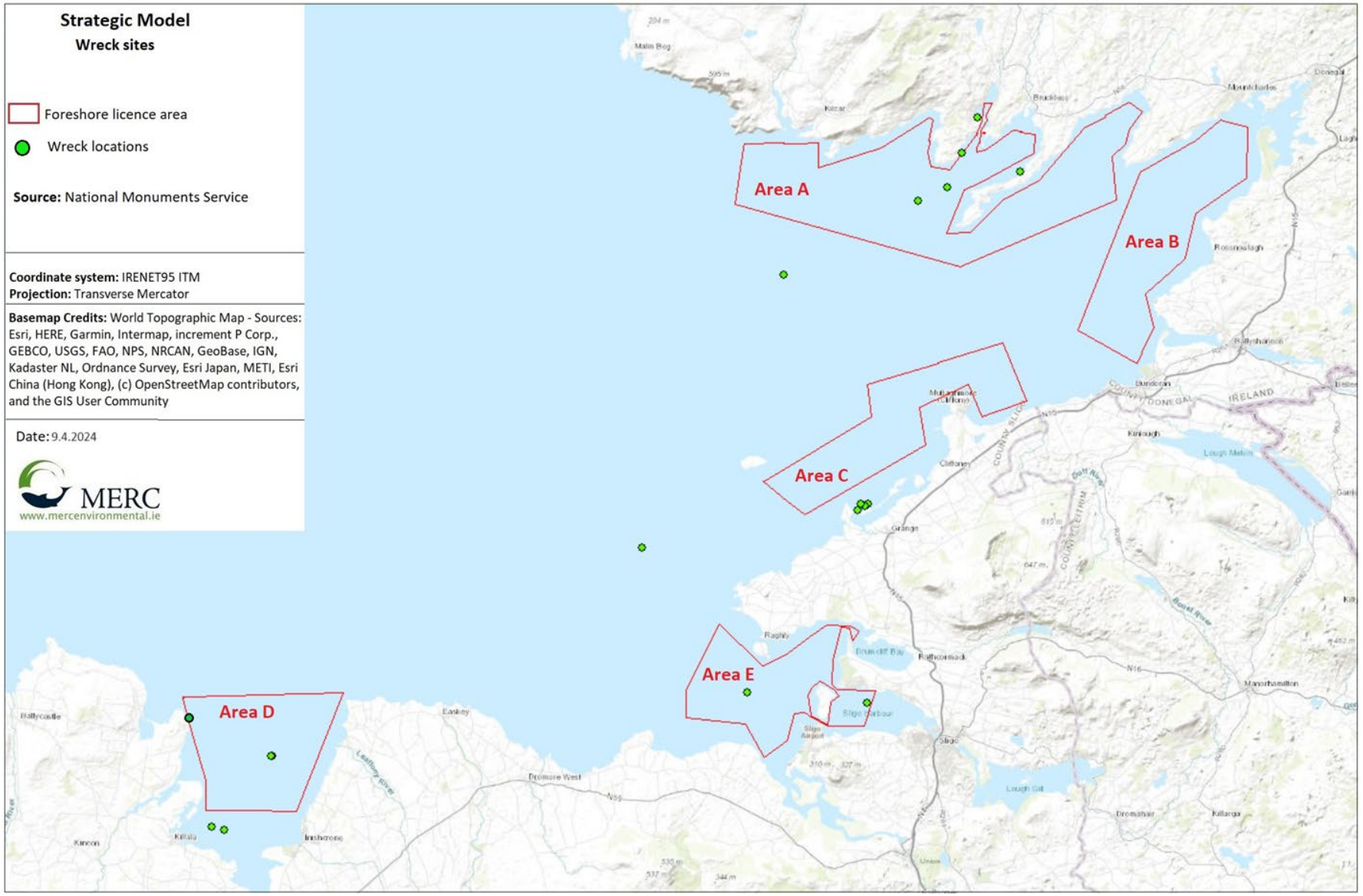

Figure 4. Wreck site within proposed licence areas.

8. Water Framework Directive

The key objectives of the Water Framework Directive (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. Thereby ensuring good qualitative and quantitative health, i.e. on reducing and removing pollution and ensuring that there is enough water to support wildlife at the same time as human needs.

This AIMU report has assessed the implications of the project on the receiving environment. It concludes that, based on the scale and scope of the proposed project no impact on the any receiving waterbody will occur. The project consists of small scale vessel based only bathymetric surveys and no potential for impacts on the receiving water body due to the use of the vessel or proposed surveys are considered possible.

9. Marine Strategy Framework Directive

The key objective of the Marine Strategy Framework Directive (MSFD) is to protect the marine ecosystem and biodiversity upon which our health and marine-related economic and social activities depend. Its aim is to achieve good environmental status (GES) of the EU's marine waters and sustainably protect the resource base upon which marine-related economic and social activities depend.

To help EU countries achieve a good environmental status (GES), the directive sets out 11 illustrative qualitative descriptors. To achieve this goal of GES, the MSFD has set out a programme of measures to address identified stressors to achieving GES. A total of 28 separate measures have been set out. These measures are mostly focused on reducing pressures by improving water quality and preventing environmental damage. Negative impacts stated in the MSFD include, for example, pollution, biodiversity loss, seabed damage, overexploitation, spread of non-indigenous species, marine litter, underwater noise, and ocean warming and acidification.

This AIMU report has assessed the implications of the project on the receiving environment (table 3). It concludes that, based on the scale and scope of the proposed project, no impact on the marine environment in possible.

Table 2. MSFD Analysis

Descriptor	Analysis	Assessment
Descriptor 1: Biodiversity is maintained	Table 2 of this AIMU provides a description of the biodiversity baseline of the proposed project location and its environs. In addition a separate SISAA, Natura Impact Statement (NIS) 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 no potential for impact on biodiversity was recorded. 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 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 2) 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 will have no interaction with the seabed. Therefore, no potential for impacts are considered possible.	No potential for impact.
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	The project SSIA and Annex IV risk assessment identified the potential for the introduction of underwater noise in the absence of mitigation. While it was considered impacts related to underwater noise were unlikely to have a significant on any marine mammal species, mitigation was proposed in view of the precautionary principle.	Provided the mitigation outlined in table 3 of this AIMU is adhered to no potential for impact on this descriptor is considered possible.

10. National Marine Planning Framework (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.

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 4 which indicates how the proposed project will be in compliance with the NMPF. The conclusion of which, is that the proposed project is fully compliant with the overall objectives and policies of the NMPF. No element of the proposed project is considered contrary to these policies.

Table 4. 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) • Natura Impact Statement • Annex IV Risk Assessment • Assessment of Impact on Maritime Usage Report (AIMU) The conclusion of the SISAA, Annex IV Risk Assessment and AIMU is that, with mitigation, no impact on any marine mammal will occur. Furthermore, the scale and scope of the project is considered too small to lead to any adverse effects on either the local or wider marine environment.
Protected Marine Sites	The SISAA identified the potential for impacts on a number of protected sites (European sites) without mitigation. The project NIS, Annex IV risk assessment and AIMU proposed mitigation to eliminate impacts on European sites. It is considered that provided the proposed 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.
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	The project SSIA and Annex IV risk assessment identified the potential for the introduction of underwater noise in the absence of mitigation. While it was considered impacts related to underwater noise were unlikely to have a significant on any marine mammal species, mitigation was proposed in view of the precautionary principle. Provided the mitigation proposed is adhered to no potential for impact related to underwater noise is considered possible.
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 air quality.
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 April 2024) indicated the presence of numerous historic wreck sites within the area. However, the proposed project will have no interaction with the seabed (acoustic surveys) with no potential for impact.
Rural Coast and Island Communities	This policy is not considered relevant to the proposed project.
Seascape and Landscape	No impact possible.
Social Benefits	The proposed project will provide social benefits in the medium to long term by facilitating the provision of improved waste water discharges.
Transboundary	No transboundary effects are possible.

11. 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 3.4.2024

Marine Institute (2024). Ireland's Marine Atlas. Available at: https://atlas.marine.ie/#?c=52.2862:-6.4689:11. Accessed 3.4.2024

MERC (2024a). Supporting Information for Screening for Appropriate Assessment Report. Uisce Éireann Sligo and Donegal Strategic Model.

MERC (2024b). EU Habitats Directive: Annex IV Risk Assessment. Supporting Information for Screening for Appropriate Assessment Report. Uisce Éireann Sligo and Donegal Strategic Model.

Irish Ramsar Wetlands Committee. Ramsar sites Ireland. Available at: http://irishwetlands.ie/irish-sites/ Accessed 9.4.2024.