



**Proposed Installation of Meteorological Station,  
Deployment of Tide and Flow Gauges, Bed-mounted  
Current Meters and Utilisation of Drones and a Remotely  
Controlled Boat (ARCBoat) in Ballyness Bay, Falcarragh, Co.  
Donegal**

**Supporting Information for Screening for Appropriate  
Assessment**

**Produced by**

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## Approval Sheet

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## 1. Introduction

### 1.1. Background

This report has been prepared by AQUAFAC – APEM Group to provide the relevant information to the competent authority to inform the Screening for Appropriate Assessment (AA) for a Maritime Usage Licence (MUL). The MUL is being submitted for the proposed installation of meteorological stations, deployment of tide and flow gauges, current meters and utilisation of an aerial drone and a hydro-drone (ARCBoat) at Ballyness Bay, Falcarragh, Co. Donegal (the 'Project'). The objective of the Project is to obtain environmental data within Ballyness Bay to establish detailed modelling of the hydrodynamic conditions and water quality within the area, informing the outfall discharge location for the existing Falcarragh Wastewater Treatment Plant (WWTP) and ultimately will be incorporated into Uisce Éireann records. The location of the meteorological (weather) station installation, anchored current meter deployments, and tide and river flow gauge deployments are shown in **Figure 1-1**. The hydro and aerial drone survey extent for Light Detection and Ranging (LiDAR), Multi Beam Echo Sounder (MBES), microbial and dye tracing surveys will occur within the red line boundary shown in **Figure 1-1**, with sampling points for water quality surveys shown in **Figure 1-3**.

A vessel-based MBES survey may be undertaken to complement the LiDAR dataset if not all required areas of seabed are prone to drying during low water on a spring tide. The MBES survey will be vessel-based and undertaken over a short, discrete period, involving temporary vessel movements within the survey area. Regarding the collection of samples for water quality analysis, additional *Escherichia coli* and *Intestinal enterococci* sampling will occur upstream of the tidal limit of Glenna, Owenawillin and Tullaghobegley Rivers. Depending on access availability either an automatic sampler will be deployed to collect water samples or manual sampling may occur.

The aerial drone will be used during the LiDAR survey and dye-tracing survey. In addition to deploying an aerial drone for dye tracing, a hydro-drone will be deployed with a mounted GPS system to monitor the concentration of the dye plume *in situ* and its development and variation over time. Fixed river flow gauges will be placed for 12 months, mounted from dry land and removed afterward. Spot gauging will be completed in the river and a cross-section will be taken of the river at the point of measurement. There will be no concrete or permanent removal of habitat in the scope of the works.

The marine surveys are not seasonally constrained, as spring and neap tides occur bi-monthly. Temperature and salinity sensors will be included in bed-mounted current meters (Acoustic Doppler Current Profilers; ADCPs), which will be deployed on static seabed frames for the duration of the

monitoring period. The anchored current meters (ADCP), tide meter, and CTDs (conductivity, temperature, depth profiler) will be deployed at fixed locations for a minimum period of 35 days (up to 12 weeks dependent upon weather conditions) to cover spring and neap tides. The current meters will be anchored to the seabed and tide gauges will be installed and attached to an existing fixed structure where possible. The marine survey equipment is either drone operated, or comprises floating instrumentation deployed from a boat. The programme for collecting data on meteorological conditions, river and water levels and water quality will take place for a period of 12 months. The licence is sought for a period of five years to enable works to be scheduled and completed in favourable weather conditions. The commencement of the surveying will be dependent upon the issuing of the maritime usage licence.

**The aims of the Project can be summarised as follows:**

The proposed marine surveying is required as part of data collection to provide quantitative inputs for a hydrodynamic model which is required to profile Ballyness Bay and North Atlantic Ocean to aid the selection of a new discharge outfall for a proposed wastewater treatment plant for the settlement of Falcarragh. The principal objective of the marine surveys is to help ensure robust assessments can be completed for the design of a new wastewater treatment plant which provides treated discharges in compliance with the Urban Waste Water Treatment Directive and with the conditions set in the extant Waste Water Discharge Authorisation licence.

The benefits resulting from the completion of the Project would include:

- In-depth understanding of the hydrodynamic conditions and water quality within Ballyness Bay providing the necessary dataset to conduct detailed modelling and highlight data gaps to be addressed.

The proposed works include:

- Installation of 1no. land-based weather station to aid in the validation of data.
- Installation of 5no. tidal gauges, attached to existing fixed structures where possible. Tidal gauges will be deployed for a minimum period of 35 days (up to 12 weeks).
- Installation of 5no. static, seabed-mounted current meters (ADCPs) with vertical profiles and integrated conductivity, temperature and depth (CTD) sensor, deployed for a minimum of 35 days (up to 12 weeks).
- Installation of 3no. river flow and stage gauges, staked to the riverbed for a 12-month period.
- Deployment of an aerial drone to conduct a Light Detection and Ranging (LiDAR) survey to establish bathymetry of the licence area

- Deployment of Multi Beam Echo Sounder (MBES) to complement the LiDAR dataset (one off; 5-7 days). At the time of writing this report the exact number, make and models are not known but the operating characteristics for shallow water are well understood. It is therefore assumed that survey equipment will have an operating frequency of 500 kHz selection.
- Deployment of an ARCBoat (a type of hydro-drone) to aid water sample collection
- Deployment of drone and hydro-drone (ARCBoat) to conduct dye and microbial tracing survey to understand dispersion pattern of effluent and to aid conceptual model calibration and verification processes under different conditions. Activity is proposed to be carried out to a maximum of three occasions, to allow for sampling error.
- Water quality sampling within the bay and rivers
- Maintenance of the tidal and flow gauges, and weather stations on site
- Decommissioning/removal of all surveying equipment at the end of the survey period.

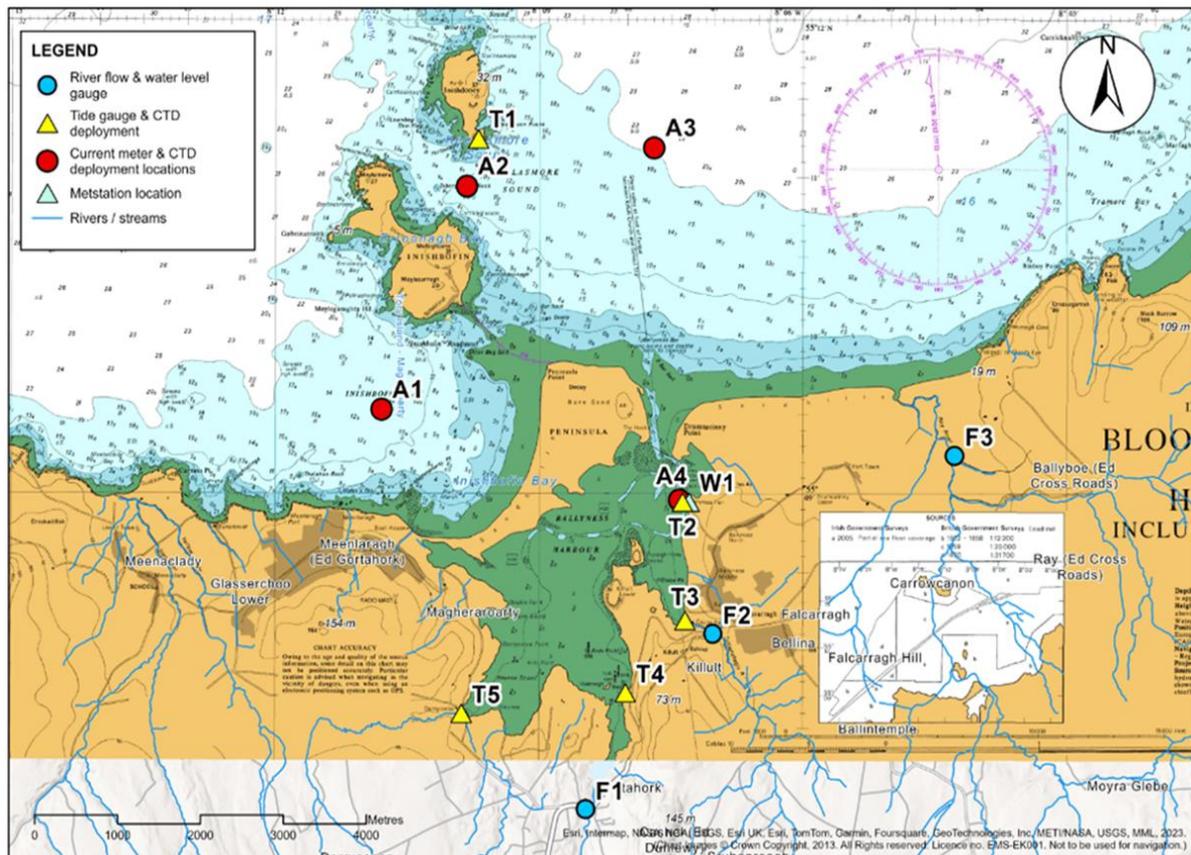


Figure 1-1: Proposed Survey Locations for Hydrodynamic Data in the Ballyness Bay area.

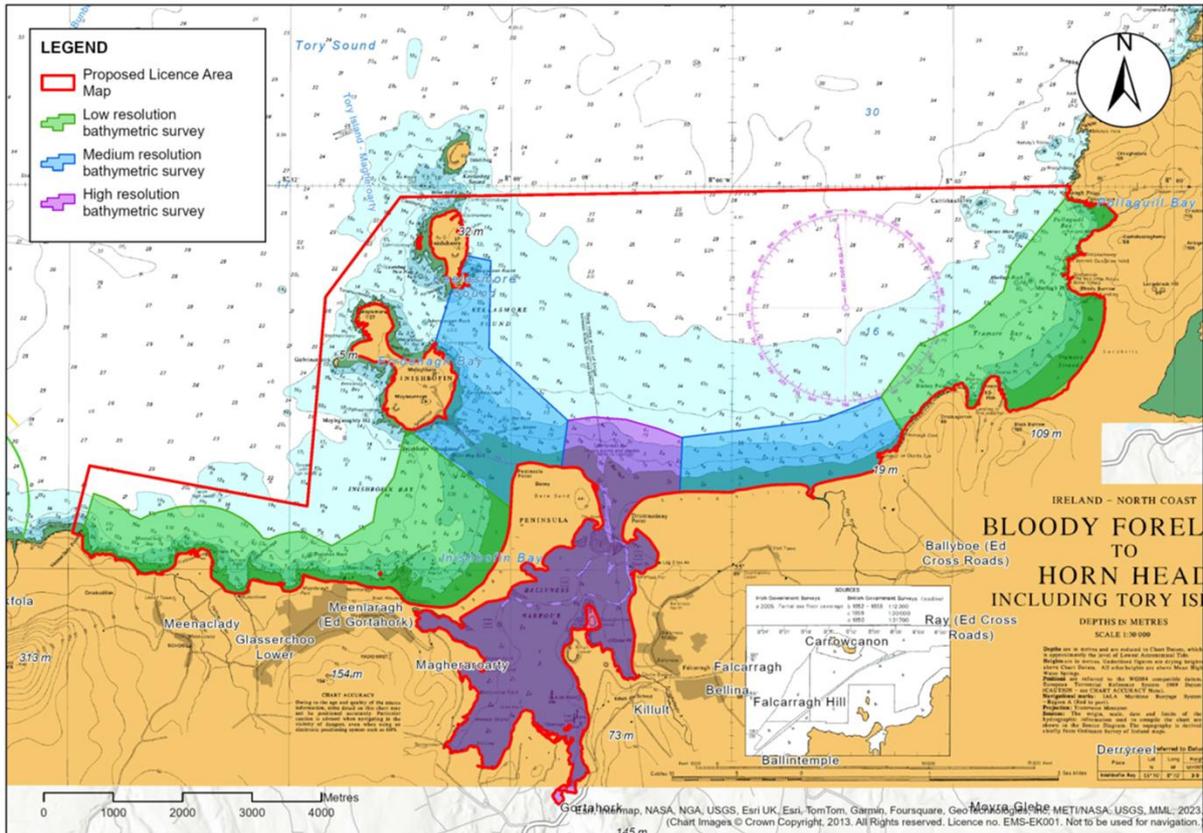


Figure 1-2: Proposed locations for bathymetric surveys in Ballyness Bay and surrounding areas.

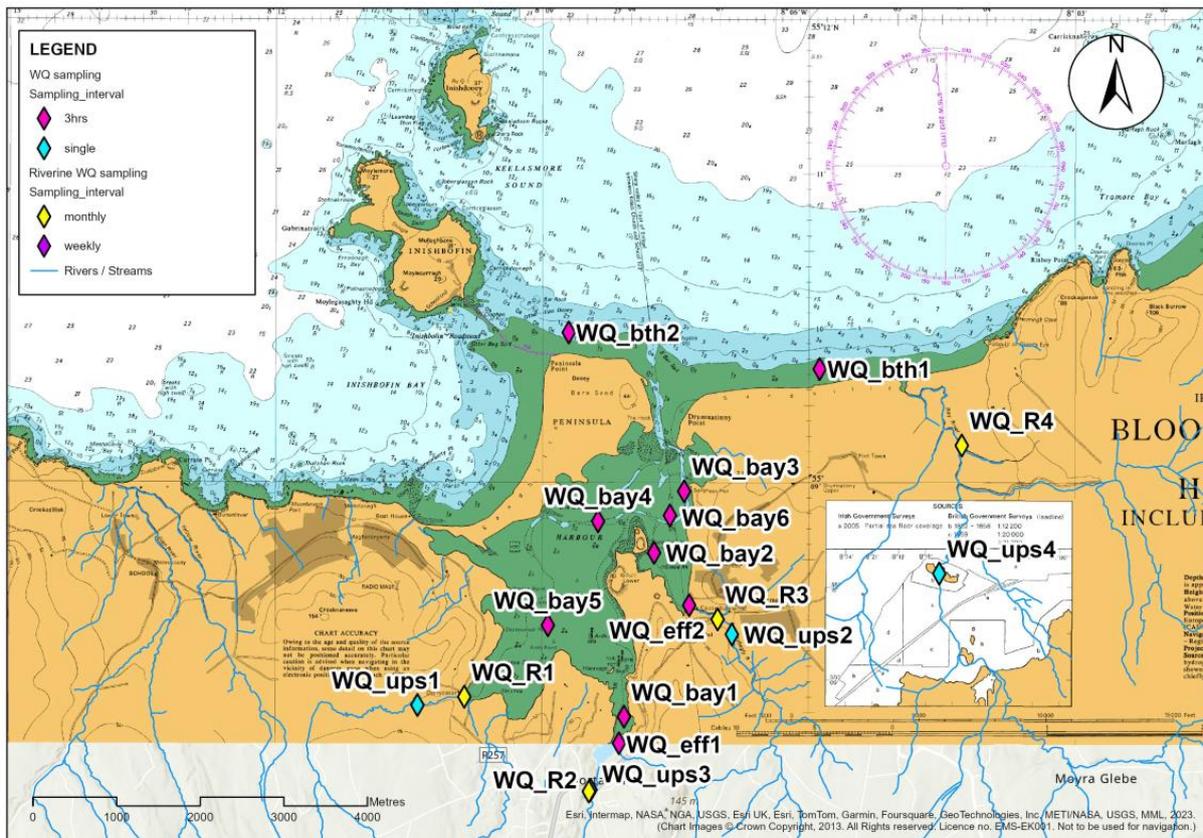


Figure 1-3: Sampling points for water quality around Ballyness Bay.

## **1.2. Purpose of this report**

This report has been prepared to address Article 6(3) obligations under the European Community (EC) Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna (commonly known as the Habitats Directive), which is transposed into Irish legislation under the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended). The report presents both the Screening for Appropriate Assessment (Stage 1) and the Natura Impact Statement (NIS) (Stage 2) for the proposed Project.

## **1.3. Guidance**

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

- EC (2018) Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC Commission Notice (2018)
- OPR (2021). Practice Note PN01 Appropriate Assessment Screening for Development Management
- DEHLG (2009) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities (Revised 2010)
- EC (2001) Managing Natura 2000 Sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC
- Department of Arts, Heritage and the Gaeltacht – National Parks and Wildlife Service DAHG - NPWS (2012) Marine Natura Impact Statements in Ireland Special Areas of Conservation, A Working Document

This assessment includes a desk-based review of available records of protected QIs and SCIs including the following sources:

- Conservation Status Assessment Reports, Backing Documents and Maps prepared to inform national reporting<sup>1</sup> required under Article 17 of the Habitats Directive
- Site Synopsis, Conservation Objective Reports and Natura 2000 Forms available from NPWS
- Published and unpublished NPWS reports on protected habitats and species including Irish Wildlife Manual reports, Species Action Plans and Conservation Management Plans
- Existing relevant mapping and databases *e.g.* waterbody status, species and habitat distribution *etc.* (sourced from the Environmental Protection Agency - <http://gis.epa.ie/>, the

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<sup>1</sup> The most recent Article 17 report (2019) is available at <https://www.npws.ie/publications/article-17-reports/article-17-reports-2019>

National Biodiversity Data Centre - <http://maps.biodiversityireland.ie> and the NPWS - <http://www.npws.ie/mapsanddata/>)

#### **1.4.        *Structure of this Report***

The remainder of this report is structured as follows:

- **Section 2.        Legislation**
- **Section 3.        Assessment Methodology**
- **Section 4.        Receiving Environment**
- **Section 5.        Potential Environmental Impacts**
- **Section 6.        Screening For Appropriate Assessment**
- **Section 7.        Stage 2: Natura Impact Statement**
- **Section 8        References**

### **1.5. Statement of Authority**

Dr. James Forde has prepared the Appropriate Assessment report. He has a Ph.D. in Marine Ecology and is a full member of the CIEEM. James has over fifteen years' experience in marine research and environmental consultancy. James specialises in marine ecology and has a full appreciation of the objectives and mechanisms of national and international environmental legislation and policy. James' academic research has focused on benthic habitats and communities, and techniques used to assess ecological impacts under European environmental legislation including the Habitats Directive and the Water Framework Directive. As part of James' consultancy work, he has delivered assessment reports to meet the provisions of the Habitats Directive and EIA Directive to accompany planning applications for a wide range of developments including pier enhancement projects, coastal defence projects, and aquaculture.

This report has been updated by Alanna Mitchell (B.Sc., M.Sc.), as the primary author. Alanna holds a First-Class honours degree in Marine Science (B.Sc.) with National University of Ireland, Galway, where she studied and surveyed intertidal shores in Galway to develop baseline information for future monitoring, including investigating species assemblages, richness, and biotopes (JNCC). She holds a First-Class honours degree in Marine Biology (M.Sc.) from University College Cork, where she participated in a project sponsored by the Marine Institute investigating the reproduction, health, and immunology of native oysters in artificial conditions. She is specialised in intertidal monitoring around Irish coasts and Geographical Information Systems (GIS) programmes. Alanna is Consultant Ecologist in the marine sector and has worked on a range of projects including sanitary surveys, benthic audits, EIAR, NIS, and Assessment of Impacts of the Maritime Usage reports.

The report has been reviewed by Aisling Hearty. Aisling is a Principal ecologist with over 6 years of experience in consultancy and marine ecology. She is a graduate of B.Sc Science from University of Galway (UG, formerly National University of Ireland, Galway) and a First-Class Honours M.Sc in Marine Biology from UCC (University College Cork) where she completed her thesis on habitat distribution modelling of odontocetes using bioacoustic analysis. She then went on to co-author a published paper on the findings of this thesis which supported the designation of the Southeastern Rockall Slope and Canyons as an Important Marine Mammal Area (IMMA). Aisling has a wide range of experience in the preparation and review of Appropriate Assessment Screening reports, Natura Impact Statements, Ecological Impact Assessments, Environmental Impact Assessment Reports and supporting documents for an IROPI designated project. Aisling's project history includes working on aquaculture licencing, renewable energy projects (solar farms and onshore and offshore wind) and water quality projects and she has extensive experience in project management including several MUL applications.

## 2. Legislation

### 2.1. *Legislative Background*

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (commonly known as the Habitats Directive) is European Community legislation regarding nature conservation established to ensure biodiversity is conserved through the conservation of natural habitats and wild fauna and flora in Europe.

The Habitats Directive was originally transposed into Irish law by the *European Communities (Natural Habitats) Regulations, 1997* (S.I. No. 94 of 1997). The 1997 Regulations were subsequently revoked and replaced by the *European Communities (Birds and Natural Habitats) Regulations 2011*, as amended (herein referred to as the 2011 Birds and Natural Habitats Regulations).

Under Regulation 42 of the 2011 Birds and Natural Habitats Regulations all competent authorities are required to conduct a screening for Appropriate Assessment (AA) and, if necessary, an AA on any plan or project on the foreshore for which it receives an application for consent, or which the authority itself wishes to undertake or adopt. This obligation derives from Articles 6(3) and 6(4) of the Habitats Directive.

The AA provision of the Habitats Directive is transposed in Ireland by the Planning and Development Act 2000 (as amended) in respect of land use plans and proposed developments requiring development consent. The Planning and Development Act, 2000 (as amended) is the basis for the Irish planning code, setting out the detail of regional planning guidelines, development plans and local area plans as well as the basic framework of the development management and consent system.

A network of sites of conservation importance hosting habitats and species as needing to be either maintained at or restored to favourable conservation status have been identified by each Member State. These sites are known as European sites within the Natura 2000 network.

European sites in Ireland that form part of the Natura 2000 network of protected sites comprise Special Areas of Conservation (SAC) sites designated due to their significant ecological importance for habitats and species protected under Annex I and Annex II respectively of the Habitats Directive, and Special Protection Area (SPA) sites designated for the protection of populations and habitats of bird species protected under the EU Birds Directive (Council Directive 2009/409/EEC). The sites are formally designated by the relevant minister under a statutory instrument. Candidate SAC and candidate SPA

sites (*i.e.* cSAC or cSPA) have the same level of protection as fully designated sites under Irish Law<sup>2</sup>. The specific named habitats and/or (non-bird) species for which an SAC or SPA are selected are called the 'Qualifying Interests' (QIs) of the site. The specific named bird species for which an SPA is selected is called the 'Special Conservation Interest' (SCI) (OPR, 2021).

Following the requirements of Article 6(3) of the Habitats Directive, under Regulation 42 of the 2011 Birds and Natural Habitats Regulations, if a plan or project is not connected with, or necessary for the management of a European site and is likely to have a significant effect on the QIs or SCIs for which a site is designated either individually or in combination with other plans or projects, an AA is required to assess whether a plan or project will have any adverse effect on the integrity of a European site(s) in view of the Conservation Objectives set for the designated QIs or SCIs.

## **2.2. Appropriate Assessment (AA) Process**

The **first stage of the AA process is Screening**; where the risk of a significant effect to a conservation feature (*i.e.*, QI or SCI) from an impact mechanism can be **excluded** on the basis of objective evidence, the designated feature and impact mechanism combination is **screened out** of further assessment. The assessments undertaken as part of the first stage of the AA process are documented in a Screening Statement for AA.

Where the Screening for AA identifies that a significant effect to a conservation feature from an impact mechanism cannot be ruled out at the screening phase, the conservation feature and the impact mechanism combination is brought forward for a detailed consideration of the potential for adverse effects. This detailed assessment of the potential for adverse effects is the second stage of the AA process. The assessments undertaken as part of the **second stage of the AA process are documented in a Natura Impact Statement (NIS)**.

This report has been prepared to provide the relevant information to inform the assessments to be undertaken for the Screening Statement for AA for the Project and has been prepared to address Article 6(3) obligations under the Habitats Directive and to inform the AA determination of the competent authorities. Specifically, this report focuses on the potential effects of the proposed development (*i.e.*, the Project) to European sites.

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<sup>2</sup> Candidate sites are those that have been submitted to the European Commission, but not yet formally adopted under Ministerial Statutory Instrument (S.I.). Legal protection, and therefore, the requirement for AA, arises from the date that the Minister gives notice of his/her intention to designate the site.

### 3. Assessment Methodology

#### 3.1. Overview

A key factor in the consideration as to whether a QI or an SCI (collectively referred to herein as conservation features) is likely to be affected by a proposed project is the existence of connectivity (or interaction, or impact pathway) between the feature and the impact mechanisms associated with the Project. National guidance (DEHLG, 2009) outlines that screening for AA should be carried out for any European Site within the likely Zone of Impact (Zoi) of a plan or project.

For projects, the guidance outlines that the Zoi must be evaluated on a case-by-case basis with reference to the nature, size and location of the Project, the sensitivities of the ecological receptors and the potential for in-combination effects. **Section 6.1** considers the potential effects due to the proposed Project, while **Section 6.2** considers potential in-combination effects with other plans and projects.

#### 3.2. Methodology

This report has been prepared to assist authorities in addressing Article 6(3) obligations under the Habitats Directive and focuses on the potential effects of the Project to European sites.

To inform the assessment, nationally available data on protected habitats and species was mapped using a Geographic Information System (GIS) and interrogated to identify for source-pathway-receptor (SPR) connectivity. SPR methodology is outlined in **Section 3.3** below.

The assessment of project impact sources (or mechanisms) considers all relevant aspects of the proposed Project that have the potential to directly or indirectly effect conservation features. The assessment of potential effects of the Project on conservation features of SACs and SPAs are presented in **Section 6.1** while the assessment of in-combination effects are outlined in **Section 6.2**.

### 3.3. *Source-Pathway-Receptor Model*

The assessment of impact mechanisms considers all relevant aspects of the Project that have potential direct or indirect and effects on conservation features. In order to establish the Zone of Influence (Zol) of the Project, the assessment of likely significant effects will be based on the Source-Pathway-Receptor (S-P-R) Model (OPR, 2021):

- **Source** - Identification of the characteristics of the Project based on the nature, size, location and type of impacts.
- **Pathway** – Identification of pathways that could link European sites and their conservation features to the Project.
- **Receptor** – Identification of the location, nature and sensitivities of the conservation features and the ecological conditions supporting their survival and the conservation objectives specified to maintain or restore favourable conservation status.

To establish the Zone of Influence (Zol) of the project, the assessment of connectivity between impact mechanisms (sources) and conservation features (*i.e.*, the QIs of SACs and SCIs of SPAs) considers the location of the project relative to designated habitats and non-mobile species, species' foraging ranges and migration routes, proximity to foraging and breeding areas, potential behavioural responses to disturbance, hydrological connectivity with conservation features, and indirect effects on prey species that could alter ecological interactions.

To inform the screening exercise, available data on protected habitats and species were mapped and interrogated in a Geographic Information System (GIS) to identify potential Source–Pathway–Receptor (S–P–R) connections. Sources (impact mechanisms), pathways (hydrological, physical or ecological connectivity), and receptors (conservation features) were identified with reference to ecological surveys undertaken in the area. Where no ecological pathway or functional link exists between the project and the conservation features of a European site, there is no potential for likely significant effects, and those features can be screened out.

**Section 6.1** considers the likely significant effects from the impact mechanisms from the Project alone, while **Section 6.2** considers potential in-combination effects with other plans or projects.

### **3.4. Potential Impact Mechanisms**

The potential impact mechanisms from this survey are outlined in detail in **Section 5**.

They include:

- Physical Disturbance to Benthic Communities/Habitats
- Physical Disturbance to Marine Mammal and Bird Species
- Noise Disturbance to Marine Mammals and Bird Species

## **4. Receiving Environment**

### **4.1. Marine Benthic Area**

The water depth is relatively shallow within Ballyness Bay. The flow gauges (code: F1-F3) will be staked to the riverbed at locations outside of the boundary of the SAC. Flow gauge F1 will be installed at the mouth of the Gleanna River that empties into Ballyness Bay. Flow gauge F2 will be installed at the mouth of the Tullaghobegly River that empties into Ballyness Bay. Flow gauge F3 will be installed in the nearby Ray River. Current meter A4 will be anchored to the seabed, where the underlying substrate is comprised primarily of sands and muds at the proposed A4 site. A review of benthic subtidal communities by NPWS (2014) indicates that this site overlaps the 'Mobile sand community complex'.

### **4.2. Marine Aerial Environment**

The proposed aerial range for the LiDAR and dye tracing surveys extends throughout Horn Head to Fanad Head SPA, Falcarragh to Meenlaragh SPA and Inishbofin, Inishdooley and Inishbeg SPA. Deployment of a drone to conduct these surveys may overlap with the breeding, foraging and roosting sites of bird species listed under Annex I, II and III of the Birds Directive.

### **4.3. Coastal habitat**

Meteorological Station (W1) is located on land near Ballyness Pier on the east side of the bay. It does not overlap with any sensitive habitat.

The tide gauges (code: T1-T5) will be attached to substrate along the coastline in order to be submerged in water for recording tidal data. The proposed sites for the gauge T1 overlaps with Inishbofin, Inishdooley and Inishbeg SPA, while gauges T2-T5 overlap with Ballyness Bay SAC.

#### 4.4. **Marine Mammal Habitat**

Common seal and grey seal haul-out sites have been observed around Ballyness Bay on intertidal sandbars and further offshore along Inishbofin, Inishdooley, and Inishbeg islands. The proposed deployment of an ARCBoat (hydro-drone) and MBES would occur throughout the area of Ballyness Bay. Similarly, the proposed dye dispersion survey will be conducted throughout the area where numbers of Annex II marine mammals have been recorded. The proposed site boundary does not overlap sensitive habitat identified for the species in the NPWS conservation objectives for relevant SACs and the bay is considered part of a wider foraging range rather than a core haul-out or breeding area.

#### 4.5. **Natura 2000 Sites**

##### 4.5.1. **Special Conservation Interests (SCI) Birds**

The SPR model identified the European sites within the ZOI of the proposed Project which were considered in this screening for AA. There are 8 SPA sites assessed with connectivity to the Project (see **Figure 4-1**); the sites are:

- Falcarragh to Meenlaragh SPA (site code: 004149)
- Inishbofin, Inishdooley and Inishbeg SPA (site code: 004083)
- Horn Head to Fanad Head SPA (site code: 004194)
- Tory Island SPA (site code 004073)
- Derryveagh and Glendown Mountains SPA (site code: 004039)
- Greers Isle SPA (site code: 004082)
- West Donegal Coast SPA (site code: 004150)
- West Donegal Islands SPA (site code: 004230)

##### **Falcarragh to Meenlaragh SPA (Site code: 004149)**

This site is located on the eastern and western sides of Ballyness Bay on the north-west coast of Co. Donegal. Extending along the coastline from Falcarragh to Meenlaragh this is a large site, covering three areas of mixed agricultural grassland. This site is designated for Corncrake (*Crex crex*) [A122]. The conservation objectives for this site's SCIs can be found in **Table 4-1**.

##### **Inishbofin, Inishdooley and Inishbeg SPA (Site code: 004083)**

This site consists of three small to medium-sized islands located between 1 km and 4 km off the north-west coast of Co. Donegal. The SPA includes marine waters between and around the islands, approximately 200 m. The site is designated for the following species: Barnacle Goose (*Branta leucopsis*) [A045], Corncrake (*Crex crex*) [A122], Common Gull (*Larus canus*) [A182], Lesser Black-

backed Gull (*Larus fuscus*) [A183] and Arctic Tern (*Sterna paradisaea*) [A194]. The conservation objectives for this site's SCIs can be found in **Table 4-1**.

#### **Horn Head to Fanad Head SPA (site code: 004194)**

This site comprises a number of separate sections of the north Co. Donegal coastline stretching approximately 70 km from Dooros Point, southwest of Horn Head to just south of Saldanha Head, south of Fanad Head. The SPA includes high coast areas, sea cliffs, land adjacent to the cliff edge, sand dunes, and the lake at Dunfanaghy/Rinclevan. The site is designated for the following species: fulmar (*Fulmaris glacialis*) [A009], shag (*Phalacrocorax aristotelis*) [A018], Barnacle Goose (*Branta leucopsis*) [A045], peregrine (*Falco peregrinus*) [A103], kittiwake (*Rissa tridactyla*) [A188], guillemot (*Uria aalge*) [A199], razorbill (*Alca torda*) [A200], chough (*Pyrrhocorax pyrrhocorax*) and Greenland white-fronted goose (*Anser albifrons flavirostris*) [A395]. The conservation objectives for this site's SCIs can be found in **Table 4-1**.

#### **Tory Island SPA (site code 004073)**

Tory island is a remote, rocky island lying north of Bloody Foreland, Co. Donegal. The eastern coastline is characterised by dramatic cliffs which extend along much of the northern coastline, while the southern coastline is low-lying. A marine area, extending 500 m from the base of the cliffs along the east and north-east side of the island, is included within the site. The site is designated for the following species: Fulmar (*Fulmarus glacialis*) [A009], Corncrake (*Crex crex*) [A122], Razorbill (*Alca torda*) [A200] and Puffin (*Fratercula arctica*) [A204]. The conservation objectives for this site's SCIs can be found in **Table 4-1**.

#### **Derryveagh and Glendown Mountains SPA (site code: 004039)**

The site is an extensive upland site in north-west Co. Donegal, comprising Glenveagh National Park, a substantial part of the Derryveagh and Glendowan Mountains and a number of the surrounding lakes. The site is designated for the following species: red-throated diver (*Gavia stellata*) [A001], merlin (*Falco columbarius*) [A098], peregrine (*Falco peregrinus*) [A103], golden plover (*Pluvialis apricaria*) [A140], and dunlin (*Calidris alpina schinzii*) [A466]. The conservation objectives for this site's SCIs can be found in **Table 4-1**.

#### **Greers Isle SPA (site code: 004082)**

The site is a very small island in the enclosed and highly sheltered waters of Mulroy Bay, Co. Donegal, approximately 500 m from the mainland. The surrounding water to a distance of 200 m is included in the site. The site is designated for the following species: black-headed gull (*Chicocephalus ridibundus*)

[A179], common gull (*Larus canus*) [A182] and sandwich tern (*Thalasseus sandvicensis*) [A863]. The conservation objectives for this site's SCIs can be found in **Table 4-1**.

#### **West Donegal Coast SPA (site code: 004150)**

This site comprises separate sections of the Co. Donegal coastline and extends from Muckros Head in the south, northwards to Slieve League, Malin Beg, Rocky Point, Glen Head, Slieve Tooley, Maghera, Loughros Point, Dunmore Head, Aran Island, Magheradrumman, Carrickfin, Carnboy, Bunbeg, Magheragallan, Lunniagh, as far as Carrick, to the south of Bloody Foreland. The site includes the high coast areas and sea cliffs of the mainland and Aran Island, the land adjacent to the cliff, areas of sand dunes/machair at Maghera, Mullaghderg, Braade/Carrickfin/Carnboy, Magheragallan and Lunniagh/Carrick, and also several areas further inland of the coast at Croaghmuckros and Slieve League, north of Glencolumbkille and south of Dunmore Head. The site is designated for the following species: fulmar (*Fulmaris glacialis*) [A009], cormorant (*Phalacrocorax aristotelis*) [A018], shag (*Phalacrocorax aristotelis*) [A018], peregrine (*Falco peregrinus*) [A103], kittiwake (*Rissa tridactyla*) [A188], guillemot (*Uria aalge*) [A199], razorbill (*Alca torda*) [A200], chough (*Pyrrhocorax pyrrhocorax*). The conservation objectives for this site's SCIs can be found in **Table 4-1**.

#### **West Donegal Islands SPA (site code: 004230)**

This site consists of a series of small to moderate-sized islands laying between 700 and 3.5 km off the northwest coast of Co. Donegal. The islands are low-lying and includes surrounding seas to 200 m from the shorelines and is highly exposed to Atlantic swells. The site is designated for the following species: shag (*Phalacrocorax aristotelis*) [A018], Barnacle Goose (*Branta leucopsis*) [A045], corncrake (*Crex crex*) [A122], common gull (*Larus canus*) [A182], and herring gull (*Larus argentatus*) [A184]. The conservation objectives for this site's SCIs can be found in **Table 4-1**.

**Table 4-1: Identification of relevant European sites, their qualifying interests and site-specific conservation objectives.**

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Site specific conservation objectives
Falcarragh to Meenlaragh SPA [004149]	Overlap with proposed MUL area and SPA.	Corncrake ( <i>Crex crex</i> ) [A122]	To restore favourable conservation condition (NPWS, 2024b)
Inishbofin, Inishdooey and Inishbeg SPA [004083]	Overlap with proposed MUL area and SPA.	Corncrake ( <i>Crex crex</i> ) [A122] Barnacle Goose ( <i>Branta leucopsis</i> ) [A045] Common Gull ( <i>Larus canus</i> ) [A182] Lesser Black-backed Gull ( <i>Larus fuscus</i> ) [A183] Arctic Tern ( <i>Sterna paradisaea</i> ) [A194]	To maintain or restore favourable conservation condition (NPWS, 2025c)
Horn Head to Fanad Head SPA 004194	Overlap with proposed MUL area and SPA.	Chough ( <i>Pyrrhocorax pyrrhocorax</i> ) [A346] Peregrine ( <i>Falco peregrinus</i> ) [A103] Barnacle Goose ( <i>Branta leucopsis</i> ) [A045] Greenland White-fronted Goose ( <i>Anser albifrons flavirostris</i> ) [A395] Razorbill ( <i>Alca torda</i> ) [A200] Guillemot ( <i>Uria aalge</i> ) [A199] Fulmar ( <i>Fulmarus glacialis</i> ) [A009] Kittiwake ( <i>Rissa tridactyla</i> ) [A188] Cormorant ( <i>Phalacrocorax carbo</i> ) [A017] Shag ( <i>Phalacrocorax aristotelis</i> ) [A018]	To maintain or restore favourable conservation condition (NPWS 2025b)
Tory Island SPA [004073]	c. 5 km	Corncrake ( <i>Crex crex</i> ) [A122] Razorbill ( <i>Alca torda</i> ) [A200] Fulmar ( <i>Fulmarus glacialis</i> ) [A009] Puffin ( <i>Fratercula arctica</i> ) [A204]	To maintain or restore favourable conservation condition (NPWS 2025d)
Derryveagh and Glendowan Mountains SPA [004039]	c. 5 km	Red-throated Diver ( <i>Gavia stellata</i> ) [A001] Merlin ( <i>Falco columbarius</i> ) [A098] Peregrine ( <i>Falco peregrinus</i> ) [A103] Golden Plover ( <i>Pluvialis apricaria</i> ) [A140] Dunlin ( <i>Calidris alpina schinzii</i> ) [A466]	To maintain or restore favourable conservation condition (NPWS 2024a)
Greers Isle SPA [004082]	c. 19 km	Common Gull ( <i>Larus canus</i> ) [A182] Black-headed Gull ( <i>Chroicocephalus ridibundus</i> ) [A179] Sandwich Tern ( <i>Thalasseus sandvicensis</i> ) [A863]	To restore favourable conservation condition (NPWS 2025a)

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Site specific conservation objectives
West Donegal Coast SPA [004150]	c. 6 km	Herring Gull ( <i>Larus argentatus</i> ) [A184] Cormorant ( <i>Phalacrocorax carbo</i> ) [A017] Shag ( <i>Phalacrocorax aristotelis</i> ) [A018] Peregrine ( <i>Falco peregrinus</i> ) [A103] Chough ( <i>Pyrrhocorax pyrrhocorax</i> ) [A346] Razorbill ( <i>Alca torda</i> ) [A200] Fulmar ( <i>Fulmarus glacialis</i> ) [A009] Kittiwake ( <i>Rissa tridactyla</i> ) [A188]	To maintain or restore favourable conservation condition (NPWS 2025e)
West Donegal Islands SPA [004230]	c. 6 km	Common Gull ( <i>Larus canus</i> ) [A182] Herring Gull ( <i>Larus argentatus</i> ) [A184] Shag ( <i>Phalacrocorax aristotelis</i> ) [A018] Barnacle Goose ( <i>Branta leucopsis</i> ) [A045] Corncrake ( <i>Crex crex</i> ) [A122]	To maintain or restore favourable conservation condition (NPWS 2025f)

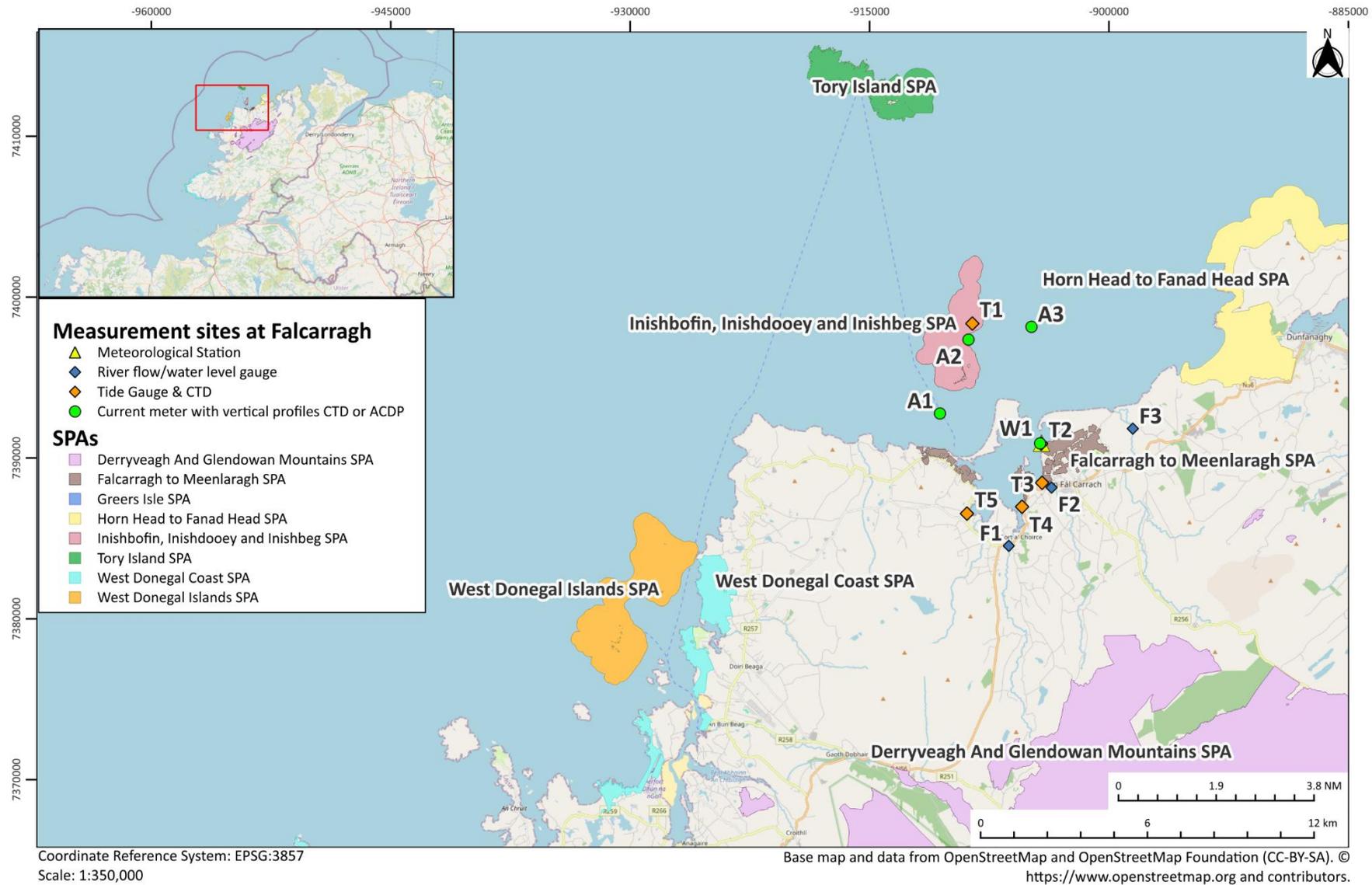


Figure 4-1: SPAs within Zol of the Project.

#### 4.5.2. Qualifying Interests (QIs) Annex I Habitats and Annex II Species

The SPR model identified the Special Areas of Conservation (SACs) within the ZOI of the proposed Project which were considered in this screening for AA. There are 11 SAC sites with connectivity to the Project (see **Figure 4-2**); the sites are:

- Ballyness Bay SAC (Site code: 001090)
- Horn Head and Rinclevan SAC (Site code: 000147)
- Gweedore Bay and Islands SAC (site code: 001141)
- Tory Island Coast SAC (site code: 002259)
- Sheephaven SAC (site code: 001190)
- Mulroy Bay SAC (site code: 002159)
- Slieve Tooney/Tormore Island/Loughros Beg Bay SAC (site code: 000190)
- West of Ardara/Maas Road SAC (site code: 000197)
- Cloghernagore Bog and Glenveagh National Park SAC (site code: 002047)
- Fawnboy Bog/Lough Nacung SAC (site code: 000140)
- Rutland Island and Sound SAC (site code: 002283)
- Lough Swilly SAC (site code: 002287)

The conservation features (*i.e.* QIs) of the above SACs are listed in **Table 4-2** alongside conservation objectives set for the conservation features. Brief descriptions of the SACs are provided below.

##### **Ballyness Bay SAC (Site code: 001090)**

Ballyness Bay is situated in north-west Donegal adjacent to the towns of Gortahork and Falcarragh. The underlying geology is mostly pelites, with some smaller areas of limestone and quartzite. This is mostly covered by windblown sand and peat. Ballyness Bay is a large and very shallow estuarine complex, with extensive areas of sandflats which are exposed at low tide. This site has been selected as an SAC for the following Annex I/II habitats/species listed under the E.U. Habitats Directive: 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] and Geyer's Whorl Snail (*Vertigo geyeri*) [1013].

##### **Horn Head and Rinclevan SAC (Site code: 000147)**

Horn Head extends northwards into the Atlantic Ocean from Dunfanaghy, Co. Donegal. This site also extends westwards, reaching just beyond Dooros Point. It is a diverse coastal site containing a wide range of habitats from high rocky quartzite cliffs in the north to mud flats, sand flats, dunes, and a brackish lake in the south. This site has been selected as an SAC for the following Annex I/II

habitats/species listed under the E.U. Habitats Directive: Embryonic shifting dunes [2110], Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120], Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130], Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*) [2170], Humid dune slacks [2190], Machairs (\* in Ireland) [21A0], Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130], Geyer's Whorl Snail (*Vertigo geyeri*) [1013], Grey Seal (*Halichoerus grypus*) [1364], Petalwort (*Petalophyllum ralfsii*) [1395] and Slender Naiad (*Najas flexilis*) [1833].

#### **Gweedore Bay and Islands SAC [site code: 001141]**

This site is an extensive coastal site including a large stretch of coastline, many islands, and areas of marine waters between the islands and the coast. It is situated between Burtonport in the south, Bloody Foreland in the north, near the towns of Derrybeg, Bunbeg and Annagary, and stretching eastwards to Bunaninver.

This site has been selected as an SAC for the following Annex I/II habitats/species listed under the E.U. Habitats Directive: Coastal lagoons [1150], Reefs [1170], Perennial vegetation of stony banks [1220], Vegetated sea cliffs of the Atlantic and Baltic coasts [1230], Atlantic salt meadows (*Glaucopuccinellietalia maritima*) [1330], Mediterranean salt meadows (*Juncetalia maritimi*) [1410], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120], Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130], Decalcified fixed dunes with *Empetrum nigrum* [2140], Atlantic decalcified fixed dunes (*Calluno-Ulicetea*) [2150], Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*) [2170], Humid dune slacks [2190], Machairs (*in Ireland*) [21A0], Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130], European dry heaths [4030], Alpine and Boreal heaths [4060], *Juniperus communis* formations on heaths or calcareous grasslands [5130], Marsh Fritillary (*Euphydryas aurinia*) [1065], Harbour Porpoise (*Phocoena phocoena*) [1351], Otter (*Lutra lutra*) [1355], Petalwort (*Petalophyllum ralfsii*) [1395] and Slender Naiad (*Najas flexilis*) [1833].

#### **Tory Island Coast SAC [site code: 002259]**

Tory Island is a remote, rocky island lying approximately 11 km north of Bloody Foreland, Co. Donegal. The island is approximately 4 km long and 1 km wide, and includes the surrounding coastal waters. This site has been selected as an SAC for the following Annex I habitats listed under the E.U. Habitats Directive: Coastal lagoons [1150], Reefs [1170], Perennial vegetation of stony banks [1220], Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] and Submerged or partially submerged sea caves [8330].

**Sheephaven SAC [site code: 001190]**

The site is a north-facing bay situated north of Creeslough on the northwest coast of Co. Donegal. The site occupies the inner part of the bay and includes the intertidal area at Carrickgart. The site receives the flows of a number of rivers, notably the Lackagh River, the Duntally River, the Faymore River and the Carrownamaddy River. This site has been selected as an SAC for the following Annex I/II habitats/species listed under the E.U. Habitats Directive: Mudflats and sandflats not covered by seawater at low tide [1140], Annual vegetation of drift lines [1210], Vegetated sea cliffs of the Atlantic and Baltic coasts [1230], Salicornia and other annuals colonising mud and sand [1310], Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330], Mediterranean salt meadows (*Juncetalia maritimi*) [1410], 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], Machairs (\* in Ireland) [21A0], Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0], *Euphydryas aurinia* (Marsh Fritillary) [1065] and *Petalophyllum ralfsii* (Petalwort) [1395].

**Mulroy Bay SAC [site code: 002159]**

Mulroy Bay is an extremely sheltered, narrow inlet situated on the north coast of Co. Donegal. The bay is a glacial fiard and a very convoluted inlet, with three significant narrows where the current is very strong. This site has been selected as an SAC for the following Annex I/II habitats/species listed under the E.U. Habitats Directive: Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160], Reefs [1170] and Otter (*Lutra lutra*) [1355].

**Slieve Tooley/Tormore Island/Loughros Beg Bay SAC [site code: 000190]**

This large and scenic site covers the half of the Slieve League peninsula in Co. Donegal, stretching from Ardara in the east towards Glencolmbkille and Glen Bay in the west. Along the northern side, the site is fringed by a range of coastal habitats including sea cliffs, stacks, islets, caves, sand dunes, the Loughros Beg Bay estuary, and salt marshes. This site has been selected as an SAC for the following Annex I/II habitats/species listed under the E.U. Habitats Directive: Vegetated sea cliffs of the Atlantic and Baltic coasts [1230], Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330], Mediterranean salt meadows (*Juncetalia maritimi*) [1410], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120], Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130], Decalcified fixed dunes with *Empetrum nigrum* [2140], Atlantic decalcified fixed dunes (*Calluno-Ulicetea*) [2150], Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*) [2170], Humid dune slacks [2190], Alpine and Boreal heaths [4060], Blanket bogs

(if active bog) [7130], Narrow-mouthed Whorl Snail (*Vertigo angustior*) [1014], Otter (*Lutra lutra*) [1355] and Grey Seal (*Halichoerus grypus*) [1364].

### **West of Ardara/Maas Road SAC [site code: 000197]**

This extensive site occupies the area of coast immediately north of Ardara in southwest Co. Donegal. From Ardara, it continues northwards around the coast, and then up the Gweebarra River to Doocharry. From the centre of the site an expanse of blanket bog extends south-east almost to Glenties. Lough Beg Bay and Slieve Tooley Mountain are adjacent, and to the southwest of the site. The Owenea system and some of its tributaries, including the Stracashel and Owengarve Rivers, are included. The site is of great ecological interest, containing a large number of habitats and species which are listed in the E.U. Habitats Directive (specifically, six priority habitats, 20 non-priority habitats and eight species). The site exhibits a highly diverse range of both coastal and terrestrial habitats, this feature itself being of high scientific value.

This site has been selected as an SAC for the following Annex I/II habitats/species listed under the E.U. Habitats Directive: Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160], Annual vegetation of drift lines [1210], Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330], Mediterranean salt meadows (*Juncetalia maritimi*) [1410], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120], Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130], Decalcified fixed dunes with *Empetrum nigrum* [2140], Atlantic decalcified fixed dunes (*Calluno-Ulicetea*) [2150], Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*) [2170], Humid dune slacks [2190], Machairs (*in Ireland*) [21A0], Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110], Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130], Northern Atlantic wet heaths with *Erica tetralix* [4010], European dry heaths [4030], Alpine and Boreal heaths [4060], Juniperus communis formations on heaths or calcareous grasslands [5130], 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], Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*) [6510], Blanket bogs (if active bog) [7130], Depressions on peat substrates of the *Rhynchosporion* [7150], Alkaline fens [7230], Geyer's Whorl Snail (*Vertigo geyeri*) [1013], Freshwater Pearl Mussel (*Margaritifera margaritifera*) [1029], Marsh Fritillary (*Euphydryas aurinia*) [1065], Salmon (*Salmo salar*) [1106], Otter (*Lutra lutra*) [1355], Harbour Seal (*Phoca vitulina*) [1365], Petalwort (*Petalophyllum ralfsii*) [1395] and Slender Naiad (*Najas flexilis*) [1833].

**Cloghernagore Bog and Glenveagh National Park SAC [site code: 002047]**

This site is a large inland site located in the centre of northwest Donegal. It includes a rich diversity of habitats and landscape features, including mountains, exposed rock and scree, blanket bogs, dry, wet and alpine heath, upland grassland, wet grassland, rivers, lakes, scrub and woodland. The Gweebarra fault bisects the area forming a long valley, orientated northeast to southwest, in which Lough Barra and Lough Veagh (Beagh) are situated. The area is generally mountainous, taking in most of the Derryveagh and Glendowan ranges and including the two highest mountains in Donegal; Errigal (751 m) and Slieve Snaght (678 m). Towards the centre-west of the site are the fine ice-carved cliffs of the Poisoned Glen and Bingorms, contrasting with the gently undulating expanses of blanket bog in the southwest and northeast of the site. This site has been selected as an SAC for the following Annex I/II habitats/species listed under the E.U. Habitats Directive: Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110], Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation [3260], Northern Atlantic wet heaths with *Erica tetralix* [4010], European dry heaths [4030], Alpine and Boreal heaths [4060], *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410], Blanket bogs (*if active bog*) [7130], Depressions on peat substrates of the *Rhynchosporion* [7150], Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0], Freshwater Pearl Mussel (*Margaritifera margaritifera*) [1029], Salmon (*Salmo salar*) [1106], Otter (*Lutra lutra*) [1355] and Killarney Fern (*Vandenboschia speciosa*) [6985].

**Fawnboy Bog/Lough Nacung SAC [site code: 000140]**

This site is situated 2 km east of Gweedore and 1.2 km north-west of Dunlewy village in Co. Donegal. It lies at the western foothills of the spectacular Errigal Mountain. Geologically, the site is underlain by metamorphosed limestones and calcareous siltstones which outcrop to the east of the area. The site is of conservation importance primarily for its blanket bog. This site has been selected as an SAC for the following Annex I/II habitats/species listed under the E.U. Habitats Directive: Northern Atlantic wet heaths with *Erica tetralix* [4010], Blanket bogs (\* if active bog) [7130], Depressions on peat substrates of the *Rhynchosporion* [7150], and *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029].

**Rutland Island and Sound SAC [site code: 002283]**

This site lies between Aran Island and Burtonport in northwest Donegal, 5 km northwest of Dunglow. Besides Rutland itself a number of other small rocky islets are also included in the site. This site has been selected as an SAC for the following Annex I/II habitats/species listed under the E.U. Habitats Directive: Coastal lagoons [1150], Large shallow inlets and bays [1160], Reefs [1170], Annual

vegetation of drift lines [1210], 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] and Harbour Seal (*Phoca vitulina*) [1365].

### **Lough Swilly SAC [site code: 002287]**

This site is large and situated in the northern part of Co. Donegal, comprising the inner part of Lough Swilly. It extends from below Letterkenny to just north of Buncrana. This site has been selected as an SAC for the following Annex I/II habitats/species listed under the E.U. Habitats Directive: Estuaries [1130], Coastal lagoons [1150], Atlantic salt meadows (*Glauco-Puccinellietalia maritima*) [1330], Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410], Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0], Harbour Porpoise (*Phocoena phocoena*) [1351] and Otter (*Lutra lutra*) [1355].

**Table 4-2: Identification of relevant European sites, their qualifying interests and site-specific conservation objectives.**

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Site specific conservation objectives
Ballyness Bay SAC [001090]	Overlap with proposed MUL area and SAC	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Humid dune slacks [2190] <i>Vertigo geyeri</i> (Geyer's Whorl Snail) [1013]	To maintain or restore favourable conservation condition (NPWS, 2014a)
Horn Head and Rinclevan SAC [000147]	Overlap with proposed MUL area and SAC	<b><i>Halichoerus grypus</i> (Grey Seal) [1364]</b> Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Dunes with <i>Salix repens</i> ssp. <i>argentea</i> ( <i>Salicion arenariae</i> ) [2170] Humid dune slacks [2190] Machairs (* in Ireland) [21A0] Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> [3130] <i>Vertigo geyeri</i> (Geyer's Whorl Snail) [1013] <i>Petalophyllum ralfsii</i> (Petalwort) [1395] <i>Najas flexilis</i> (Slender Naiad) [1833]	To maintain or restore favourable conservation condition (NPWS, 2024c)

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Site specific conservation objectives
Gweedore Bay and Islands SAC [001141]	c. 2 km	<b>Otter (<i>Lutra lutra</i>) [1355]</b> Coastal lagoons [1150] Reefs [1170] Perennial vegetation of stony banks [1220] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Atlantic salt meadows ( <i>Glauco- Puccinellietalia maritimae</i> ) [1330] Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) [1410] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Decalcified fixed dunes with <i>Empetrum nigrum</i> [2140] Atlantic decalcified fixed dunes ( <i>Calluno- Ulicetea</i> ) [2150] Dunes with <i>Salix repens</i> ssp. <i>argentea</i> ( <i>Salicion arenariae</i> ) [2170] Humid dune slacks [2190] Machairs (* in Ireland) [21A0] Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> [3130] European dry heaths [4030] Alpine and Boreal heaths [4060] <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] <i>Euphydryas aurinia</i> (Marsh Fritillary) [1065] <i>Petalophyllum ralfsii</i> (Petalwort) [1395] <i>Najas flexilis</i> (Slender Naiad) [1833] <i>Phocoena phocoena</i> (Harbour Porpoise) [1351]	To maintain or restore favourable conservation condition (NPWS, 2015a)
Tory Island Coast SAC [002259]	c. 5 km	Coastal lagoons [1150] Reefs [1170] Perennial vegetation of stony banks [1220] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Submerged or partially submerged sea caves [8330]	To maintain or restore favourable conservation condition (NPWS 2015c)
Sheephaven SAC [001190]	c. 7 km	Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	To maintain or restore favourable conservation

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Site specific conservation objectives
		<p><i>Salicornia</i> and other annuals colonising mud and sand [1310]            Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]            Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]            Embryonic shifting dunes [2110]            Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]            Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]            Humid dune slacks [2190]            Machairs (* in Ireland) [21A0]            Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0]  <i>Euphydryas aurinia</i> (Marsh Fritillary) [1065]  <i>Petalophyllum ralfsii</i> (Petalwort) [1395]</p>	condition (NPWS, 2014b)
Mulroy Bay SAC [002159]	c. 13 km	<p>Mudflats and sandflats not covered by seawater at low tide [1140]            Large shallow inlets and bays [1160]  <i>Lutra lutra</i> (Otter) [1355]            Reefs [1170]</p>	To maintain or restore favourable conservation condition (NPWS 2012)
Slieve Tooley/Tormore Island/Loughros Beg Bay SAC [site code: 000190]	c. 50 km	<p><b><i>Halichoerus grypus</i> (Grey Seal) [1364]</b>            Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]            Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]            Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]            Embryonic shifting dunes [2110]            Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]            Decalcified fixed dunes with <i>Empetrum nigrum</i> [2140]            Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) [2150]            Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>) [2170]            Humid dune slacks [2190]            Alpine and Boreal heaths [4060]            Blanket bogs (* if active bog) [7130]  <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014]  <i>Lutra lutra</i> (Otter) [1355]</p>	To maintain or restore favourable conservation condition (NPWS 2015b)
West of Ardara/Maas	c. 50 km	<p>Estuaries [1130]            Mudflats and sandflats not covered by seawater at low tide [1140]</p>	To maintain or restore favourable

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Site specific conservation objectives
Road SAC [site code: 000197]		<p>Large shallow inlets and bays [1160]  Annual vegetation of drift lines [1210]  Atlantic salt meadows (<i>Glauco- Puccinellietalia maritimae</i>) [1330]  Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]  Embryonic shifting dunes [2110]  Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]  Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]  Decalcified fixed dunes with <i>Empetrum nigrum</i> [2140]  Atlantic fixed (<i>Calluno-Ulicetea</i>) [2150]  Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>) [2170]  Humid dune slacks [2190]  Machairs (* in Ireland) [21A0]  Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) [3110]  Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> [3130]  Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010]  European dry heaths [4030]  Alpine and Boreal heaths [4060]  <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130]  Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco- Brometalia</i>) (* important orchid sites) [6210]  Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410]  Lowland hay meadows (<i>Alopecurus pratensis</i>, <i>Sanguisorba officinalis</i>) [6510]  Blanket bogs (* if active bog) [7130] Depressions on peat substrates of the Rhynchosporion [7150]  Alkaline fens [7230]  <i>Vertigo geyeri</i> (Geyer's Whorl Snail) [1013]  <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029]  <i>Euphydryas aurinia</i> (Marsh Fritillary) [1065]  <i>Salmo salar</i> (Salmon) [1106]  <i>Lutra lutra</i> (Otter) [1355]  <i>Phoca vitulina</i> (Harbour Seal) [1365]  <i>Petalophyllum ralfsii</i> (Petalwort) [1395]  <i>Najas flexilis</i> (Slender Naiad) [1833]</p>	conservation condition (NPWS 2015d)

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Site specific conservation objectives
Cloghernagore Bog and Glenveagh National Park SAC [site code: 002047]	c. 7 km	<p><b><i>Lutra lutra</i> (Otter) [1355]</b>  <b><i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029]</b>  <b><i>Salmo salar</i> (Salmon) [1106]</b>            Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) [3110]            Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260]            Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010]            European dry heaths [4030]            Alpine and Boreal heaths [4060]            Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410]            Blanket bogs (* if active bog) [7130]            Depressions on peat substrates of the Rhynchosporion [7150]            Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0]  <i>Vandenboschia speciosa</i> (Killarney Fern) [6985]</p>	To maintain or restore favourable conservation condition (NPWS, 2017)
Fawnboy Bog/Lough Nacung SAC [site code: 000140]	c. 6 km	<p>Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010]            Blanket bogs (* if active bog) [7130]            Depressions on peat substrates of the Rhynchosporion [7150]  <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029]</p>	To maintain or restore favourable conservation condition (NPWS, 2016)

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Site specific conservation objectives
Rutland Island and Sound SAC [002283]	c. 22 km	<p><b><i>Phoca vitulina</i> (Harbour Seal) [1365]</b></p> <p>Coastal lagoons [1150]            Large shallow inlets and bays [1160]            Reefs [1170]            Annual vegetation of drift lines [1210]            Embryonic shifting dunes [2110]            Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]            Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]            Humid dune slacks [2190]</p>	To maintain or restore favourable conservation condition (NPWS, 2013)
Lough Swilly SAC 002287	c. 45 km	<p>Estuaries [1130]            Coastal lagoons [1150]            Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330]            Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410]            Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]  <i>Lutra lutra</i> (Otter) [1355]  <i>Phocoena phocoena</i> (Harbour Porpoise) [1351]</p>	To maintain or restore favourable conservation condition (NPWS, 2011)

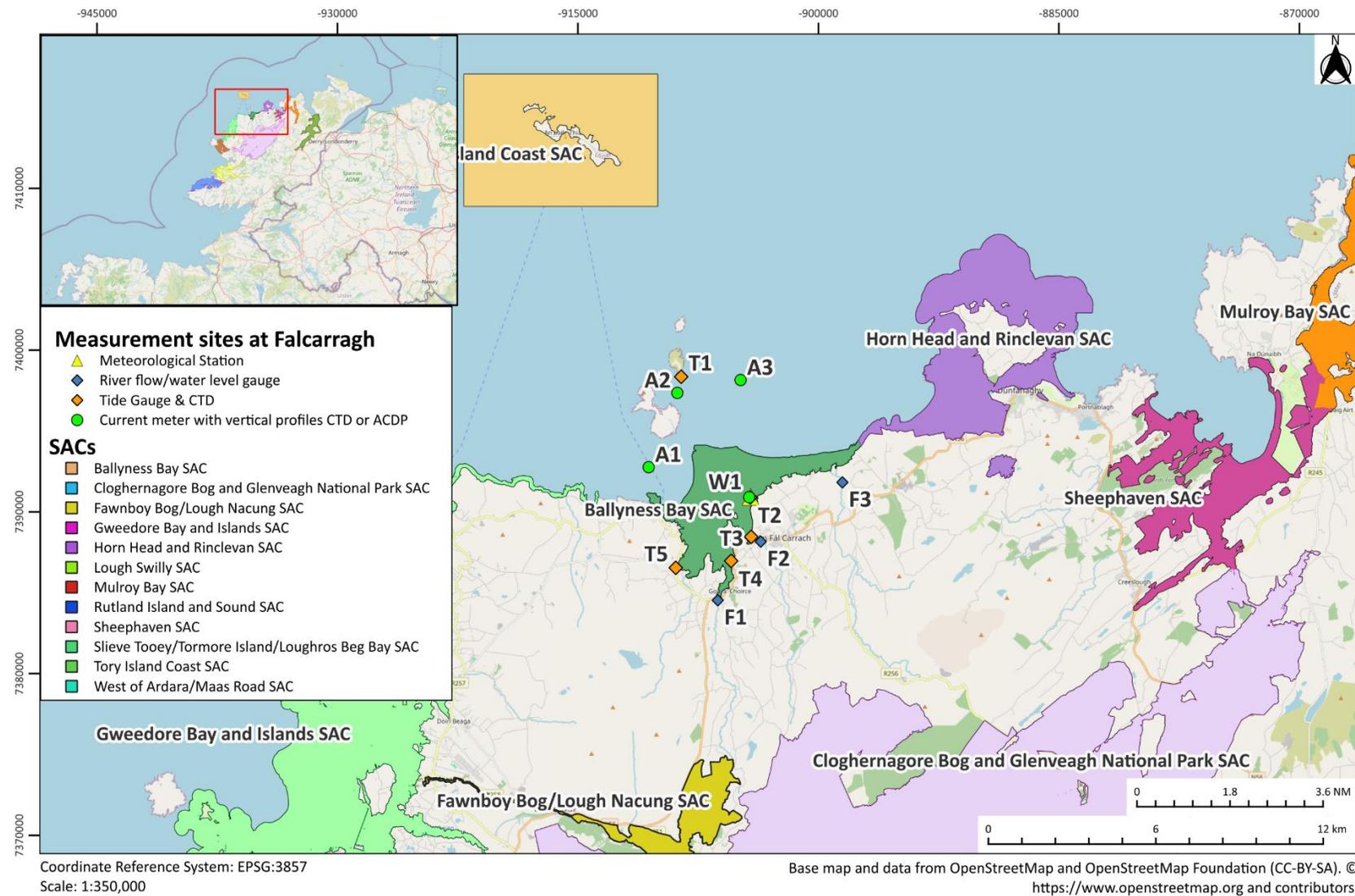


Figure 4-2: SACs within Zol of the Project.

#### 4.5.3. Qualifying Interests (QIs) Annex II Marine Mammals

This section looks specifically at Annex II marine mammals listed as QIs due to their ability to forage over a large range and potentially into the project area. Horn Head and Rinclevan SAC overlaps the project area and grey seal (*Halichoerus grypus*) is a designated feature of this *Natura 2000* site.

The following species listed as QIs in SACs in Ireland have been assessed in terms of their potential to occur in the Project area:

- ***Phoca vitulina* (Harbour seal):** Sharples *et al.* (2012) assessed the movement of common seals at seven locations around Britain and found that foraging behaviour can vary significantly. The furthest foraging trip reported by Sharples *et al.* (2012) was 220 km and the mean was 33.65 km (across the seven locations). A total of 1 SACs in Irish waters designated for harbour seal are located within 33.65 km of the Project; these SACs are assessed in the Screening assessment.
- ***Halichoerus grypus* (Grey seal):** Cronin *et al.* (2011) investigated grey seal movement on Irelands' continental shelf. A total of 529 foraging trips recorded with the furthest trip measuring 511 km and a reported mean distance travelled away from the haul-out site was 50.85 km; A total of 2 SACs in Irish waters designated for grey seal are located within 50.85 km of the Project; these SACs are assessed in the Screening assessment.

The following cetacean species were considered:

- ***Phocoena phocena* (Harbour porpoise):** The SACs in Irish waters designated for the wide-ranging species are included in the Screening for AA.
- ***Tursiops truncatus* (Common Bottlenose Dolphin):** The SACs in Irish waters designated for the species are included in the Screening for AA.

The relevant SACs designated for Annex II marine mammal species are detailed in **Table 4-3**.

**Table 4-3: SACs designated for marine mammal species found in Irish waters.**

Special Area of Conservation (SAC)	Distance (km) from proposed MUL application area	Grey Seal ( <i>Halichoerus grypus</i> ) [1364]	Harbour Seal ( <i>Phoca vitulina</i> ) [1365]	Common bottlenose dolphin ( <i>Tursiops truncatus</i> ) [1349]	Harbour Porpoise ( <i>Phocoena phocoena</i> ) [1351]
Ballysadare Bay SAC [000622]	130.59		✓*		
Belgica Mound Province SAC [002327]	533.27			✓*	✓*
Blackwater Bank SAC [002953]	498.99				✓*
Blasket Islands SAC [002172]	428.08	✓*			✓*
Bunduff Lough and Machair/Trawalua/Mullaghmore SAC [000625]	111.71				✓*
Carnsore Point SAC [002269]	523.96				✓*
Clew Bay Complex SAC [001482]	245.23		✓*		
Codling Fault Zone SAC [003015]	379.44				✓*
Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC [000627]	123.8		✓*		
Donegal Bay (Murvagh) SAC [000133]	127.12		✓*		
Duvillaun Islands SAC [000495]	193.96	✓*		✓*	
Galway Bay Complex SAC [000268]	360.43		✓*		
Glengarriff Harbour and Woodland SAC [000090]	545.2		✓		
Gweedore Bay and Islands SAC [001141]	21.25				✓*
Hook Head SAC [000764]	564.83			✓*	✓*
Horn Head and Rinclevan SAC [000147]	22.54	✓*			
Inishbofin and Inishshark SAC [000278]	251.37	✓*			
Inishkea Islands SAC [000507]	189.9	✓*			
Inishmore Island SAC [000213]	316.57				✓*
Kenmare River SAC [002158]	486.02		✓*		✓*
Kilkieran Bay and Islands SAC [002111]	309.92		✓*		✓*
Killala Bay/Moy Estuary SAC [000458]	138.97		✓*		

Special Area of Conservation (SAC)	Distance (km) from proposed MUL application area	Grey Seal ( <i>Halichoerus grypus</i> ) [1364]	Harbour Seal ( <i>Phoca vitulina</i> ) [1365]	Common bottlenose dolphin ( <i>Tursiops truncatus</i> ) [1349]	Harbour Porpoise ( <i>Phocoena phocoena</i> ) [1351]
Lambay island SAC [000204]	372.24	✓	✓		✓*
Lough Swilly SAC [002287]	65.75				✓*
Lower River Shannon SAC [002165]	409.49			✓*	
Porcupine Bank Canyon SAC [003001]	558.7			✓*	
Roaringwater Bay and Islands SAC [000101]	545.37	✓*			✓*
Rockabill to Dalkey Island SAC [003000]	378.91				✓*
Rutland Island and Sound SAC [002283]	36.12		✓*		
Saltee Islands SAC [000707]	544.95	✓*			
Slaney River Valley SAC [000781]	508.66		✓	✓*	
Slieve Tooley/Tormore Island/Loughros Beg Bay SAC [000190]	63	✓*			
Slyne Head Islands SAC [000328]	271.15	✓*		✓*	
Slyne Head Peninsula SAC [002074]	271.72			✓*	
South-West Porcupine Bank SAC [002329]	587.8			✓*	
St. John's Point SAC [000191]	103.76			✓*	
West Connacht Coast SAC [002998]	166.23			✓*	✓*
West of Ardara/Maas Road SAC [000197]	53.11		✓*		

## 5. Potential Environmental Impacts

### 5.1. Potential Impact Mechanisms

A detailed description of the Project is provided above in **Section 1.1**; given the nature of the proposed activities associated with the Project, the potential impact mechanisms (or sources of impact) are:

**Physical disturbance** associated with current meter and flow gauges anchorage/staked to the benthos. There is a risk of effects on sensitive benthic subtidal communities if site of deployment and community area overlap.

**Physical disturbance** associated with vessel operation throughout the Project area. There is a risk of effects on marine mammal species listed under Annex II of the Habitats Directive and on bird species protected under of the Birds Directive if vessel operations and foraging areas overlap, posing a disturbance/collision risk.

**Physical disturbance** associated with tidal gauge deployment along the coastline overlapping with Ballyness Bay SAC.

**Physical disturbance** associated with deployment and operation of hydro-drone (ARCBoat) and MBES. There is a risk of effects on marine mammal species listed under Annex II of the Habitats Directive if the remotely controlled devices and foraging areas overlap, posing a disturbance/collision risk.

**Physical disturbance** associated with deployment of a drone for LiDAR survey and dye for dye tracing survey throughout Horn Head to Fanad Head SPA, Falcarragh to Meenlaragh SPA and Inishbofin, Inishdooley and Inishbeg SPA. There is a risk of effects on bird species listed under Annex I of the Birds Directive as the drones pose a disturbance risk to SCI breeding sites/colonies.

**Noise disturbance** associated with MBES operation. There is a risk of species interacting with the echosounder causing disturbance.

**Noise disturbance** associated with localised, low-power acoustic emissions associated with static Acoustic Doppler Current Profiler (ADCP) deployments. There is a risk of species interacting with the meters causing disturbance.

**Visual and above-water noise disturbance** associated with vessel operations and increased human presence. Potential for survey activities to generate noise, vibration and increased human presence, or vessel and drone activity to be at an intensity and duration that could

cause brief, temporary disturbance. There is a risk of disturbance effects on marine mammal and bird species.

**Barrier to connectivity** associated with survey activities. Potential for temporary acoustic barriers to connectivity for mobile species such as salmon from vessel noise and associated disturbance from survey activity. Disturbance to migratory salmon could indirectly affect pearl mussel recruitment.

**Pollution** associated with vessels in the area during deployment and during collection of the tidal gauges and water samples. The vessel used will be fully certified and compliant with the aims of the MARPOL Convention. The MARPOL Convention is a key international treaty designed to minimise pollution from ships and protect the marine environment. It is not considered likely that the proposed deployment of tidal gauges, or the manual collection of water samples will give rise to a pollution event and is **therefore not considered further** in this report.

## **5.2. *Physical Disturbance to Habitats Directive Annex I Marine Benthic Communities***

Due to the current meters and flow gauges being anchored to the seabed there is a risk of disturbance to the benthic habitats under the footprint of their deployment locations. One of the four current meter deployments (code: A4) occurs within the Ballyness Bay SAC area (see **Figure 1-1**). The proposed moorings at A4 coincides with the following marine habitats:

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

These habitats support the following benthic communities:

- Coarse sediment to sandy mud with oligochaetes and polychaetes community complex
- Mobile sand community complex

## **5.3. *Physical Disturbance to Habitats Directive Annex I Coastal Habitats***

Due to the positioning of the tidal gauges along the coastline there is a risk of disturbance to Annex I coastal habitats. Tidal gauges T2 to T5 are located within Ballyness Bay SAC (see **Figure 1-1**).

#### **5.4. Physical Disturbance to Habitats Directive Annex II Species**

##### **Hydro-drone (ARCBot), deployment vessel, and vessels undertaking MBES surveys**

Due to the movement of the hydro-drone (ARCBot), instrument deployment vessel, and MBES throughout Ballyness Bay SAC these remotely operated devices have the potential to pose a collision risk for marine mammals as the equipment traverses the bay area.

##### **Aerial drones**

Due to the movement of a drone throughout Horn Head to Fanad Head SPA, Falcarragh to Meenlaragh SPA and Inishbofin, Inishdoeey and Inishbeg SPA these remotely operated devices have the potential to pose a disturbance risk for bird species listed under Annex I of the Birds Directive as the drones may fly in the vicinity of coastal areas and potential breeding sites. A drone will operate on up to three occasions to conduct dye tracing surveys and will subsequently be retrieved after each sample collection is completed. A drone will be used during the LiDAR survey (one off; 5-7 days).

##### **Microbial dye tracing**

Dye will be released from the baseline discharge locations. It is envisaged that a dye tracing study will be successfully completed once in an ebb tide and once in neap tide. The duration of the study is the tidal cycle when dye is released (one release to be observed for 24 to 48 hours per study). The application proposes three occasions in total in the event of an unsuccessful survey. Rhodamine B and Rhodamine WT are fluorescent dyes commonly used as tracers in hydrological investigations. Rhodamine B and Rhodamine WT are considered toxic at certain levels and therefore have to be investigated further in this report to evaluate if the dyes have the potential to negatively impact aquatic life.

Rhodamine WT will be used in the surveys. The dye tracing survey will be carried out with dye concentrations below the maximum allowable concentration of  $>910\mu\text{g/l}$  (Skjolding *et al.*, 2021). No other dye is proposed with the Project. Rhodamine WT is not listed as a priority or hazardous substance under the EU Water Framework Directive or OSPAR, and as such, no statutory environmental quality standard (EQS) applies to its use. It is widely employed as a water tracer because even at very low concentrations it is easily detectable, allowing applications to remain well below levels of ecotoxicological concern. Once released into surface waters, Rhodamine WT is subject to photolytic degradation, with rate coefficients in natural sunlight ranging from approximately  $0.0316\text{--}0.0477\text{ day}^{-1}$ , corresponding to half-lives of only 1–3 weeks depending on season and latitude (Smart & Laidlaw, 1977; Wilson *et al.*, 1986; Tai & Rathbun, 1988). The dye's high-water solubility and low lipophilicity mean that it does not readily partition into sediments or organisms, and empirical

evidence from structurally related compounds indicates very low bioconcentration potential (Environment and Climate Change Canada, 2010).

### **5.5. Noise Disturbance to Habitats Directive Annex II Species**

Marine mammals rely on sound to navigate, communicate, and sense and interpret their surroundings. As vessel-based MBES surveys will be undertaken within Ballyness Bay, there is a potential risk of noise disturbance to Annex II marine mammal species arising primarily from vessel activity. If the frequency of anthropogenic noise overlaps with the frequencies used by marine mammals, this may reduce the animal's ability to detect important sounds for navigation, communication and prey detection (Weilgart, 2007). This is termed acoustic masking, which may occur anywhere within an organism's auditory range (Wright *et al.* 2007; Richardson *et al.* 1995). Masking of important vocalisations will result in increasing information ambiguity and, in extreme circumstances, may result in cetaceans being unable to orientate themselves or hunt/evade predation in the marine environment (Wright *et al.* 2007).

Noise emissions associated with static ADCP deployments are highly localised, low power and short range and are not considered further in this assessment, in line with the Appropriate Assessment screening determination undertaken by the Maritime Area Regulatory Authority (MARA).

Southall *et al.* (2008) has categorised seals and cetaceans into five functional groups based on several laboratory studies, audiometric data and through comparisons of anatomy. The functional group's cetaceans in relation to their known auditory ability and functional frequencies, whilst all pinniped species were assessed based on their auditory ability in air as well as their auditory ability in water. Otters (*Lutra lutra*) spend 75% of their lives on land. They can be relatively tolerant of disturbance and adjust to circumstances. They are often present in urban areas with considerable human activity nearby. There are no criteria to assess the significance of underwater noise on the Eurasian otter however it is thought they are similar to those of pinnipeds (Ghoul & Reichmuth, 2014) and are assessed as such moving forward. Details of the frequency abilities of cetaceans and pinnipeds are included in the table below. Short term disturbance to marine mammals within the Project area may occur due to vessel activity and increased human presence during survey. Several QI species could experience temporary displacement or altered behaviour; consequently, QI species are examined in further detail in this report.

**Table 5-1: Functional frequencies of various cetaceans and pinnipeds found in Irish waters (adapted from Southall *et al.* (2007)). Qualifying Interest species of Irish SAC highlighted in bold.**

Cetaceans			Pinnipeds (in water)	Pinnipeds (in air)
Low Frequency (7 Hz-22 kHz)	Mid-frequency (150 Hz-160 kHz)	High Frequency (200 Hz-180 kHz)	All species (50Hz - 86 kHz)	All species (75 Hz – 30 kHz)
Baleen whales	Most toothed whales, dolphins	Certain toothed whales, porpoises	All species	All species
<b>Species Recorded in Irish Waters</b>				
Humpback whale Blue whale Fin whale Sei whale Minke whale	Sperm whale Killer whale Long-finned pilot whale Beaked whale species <b>Dolphin species</b>	Pygmy sperm whale <b>Harbour porpoise</b>	<b>Grey seal</b> <b>Harbour seal</b>	<b>Grey seal</b> <b>Harbour seal</b>

### 5.6. Noise Disturbance to Bird species

Given that the MBES emits sound into the water column, there is a potential pathway for interaction with diving birds. However, due to the shallow depth of the Ballyness Bay estuarine complex it can be concluded that deep diving birds will not occur in high numbers, and if at all, near the deployed equipment, and so potential significant interactions will not occur. Short term disturbance to birds within intertidal and coastal areas may occur due to drone activity near breeding sites during survey. Several SCI species could experience temporary displacement or altered behaviour; consequently, SCI species are examined in further detail in this report.

## 6. Screening for Appropriate Assessment

The obligation to undertake AA under the 2011 Birds and Natural Habitats Regulations derives from the Habitats Directive. Regulation 42(1) of the 2011 Regulations requires that:

*A screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is **not directly connected with or necessary to the management of the site as a European Site**, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site.*

The proposed Project is not associated with the 'management' of European sites within the Natura 2000 Network having regard to Article 6 of the Habitats Directive, and as such it is appropriate that the proposed Project is subject to a screening for AA. This screening assessment investigates, in view of best scientific knowledge, whether the proposed Project, individually or in combination with other plans and projects, would be likely to have a significant effect on European sites.

As outlined in **Section 1**, this report, which has been prepared to assist competent authorities address Article 6(3) obligations of the Habitats Directive and associated national regulations, focuses on the potential effects to European sites associated with the proposed Project. A description of the Project is outlined in **Section 1.1**, while **Section 6** considers the likelihood of significant effects of the Project on European sites both in isolation and in combination with other projects.

### **6.1. Screening Exercise: Assessment of Potential Significant Effects to Conservation Features**

#### **6.1.1. Habitats**

##### **Marine Benthic Communities**

The deployment of a current meter at site A4 in Ballyness Bay overlaps with the following marine habitat:

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

These habitats support the following benthic communities:

- Coarse sediment to sandy mud with oligochaetes and polychaetes community complex
- Mobile sand community complex

Based on the interpolation provided by NPWS, the QI 'Estuaries' comprises part of the Ballyness Bay Complex SAC, encompassing an area of 15.9 ha. The QI 'Mudflats and sandflats not covered by

seawater at low tide' extends throughout much of the Ballyness Bay SAC site and encompasses an area of 691.8 ha. The extent of the area dominated by the 'Coarse sediment to sandy mud with oligochaetes and polychaetes community complex' and 'Mobile sand community complex' in the estuarine habitat has been identified by NPWS (2014) at 12 ha and 3ha, respectively. The extent of the area dominated by these same communities in the tidal mudflats and sandflats habitat has been identified by NPWS (2014) at 120 ha and 570 ha, respectively. An individual current meter will occupy a minimal area.

The current meters and flow gauges are to be deployed at fixed stations for the duration of the survey (minimum 35 days; maximum 12 weeks). The effect to the seabed will be temporary occupation of the seabed, and as the area occupied by the flow gauge does not represent a sensitive intertidal macro-invertebrate faunal community **no effect is likely to occur** as a result of the equipment being deployed. Therefore, the physical impact mechanism is **screened out** of further assessment. See **Table 6-1** and **Table 6-2** below for summary of screening outcomes.

### Coastal Habitats

The installation of tidal gauges (T2-T4) along the coastline overlaps with the following SACs:

- Ballyness Bay SAC
- Hornhead and Rinclevan SAC

The QIs supported by these two SACs are listed in **Table 4-2**. Considering the small spatial extent occupied by the proposed tidal gauges they pose no significant effect to the coastal habitat.

The tidal gauges are to be deployed at fixed stations for the duration of the survey period. The effect to the coastline will be temporary occupation of a minimal area of the coastline, and as the areas occupied by the tidal gauges do not disrupt a sensitive habitat **no effect is likely to occur** as a result of the equipment being deployed. Therefore, the physical impact mechanism is **screened out** of further assessment. See **Table 6-1** and **Table 6-2** below for summary of screening outcomes.

#### 6.1.2. Species

##### Marine Mammals and Birds

##### *Hydro-drone (ARCBoat), deployment vessel, MBES (Physical disturbance)*

The collision risks the hydro-drone (ARCBoat), instrument deployment vessel, and MBES individually pose is not significant due to their relatively small size, slow speed and infrequent deployment throughout the survey period.

The hydro-drone (ARCBot) will be deployed on up to three separate occasions (each lasting c. 24-48 hours) during the dye-tracing survey period. The MBES survey will cover a relatively small nearshore area in a 'one-off' survey over 5-7 days (see bathymetric extent, **Figure 1-2**); the high resolution bathymetric surveys cover a proposed area of 753.8 ha, the medium resolution surveys cover a proposed area of 623.2 ha, and the low resolution surveys cover an area of 1139.5 ha. Considering the highly mobile nature of marine mammals and large spatial extent of suitable habitat available, excluding the bathymetric survey extent, an overlap is unlikely. All pieces of equipment will subsequently be recovered after each sample collection is completed. As the areas occupied by the hydro-drone (ARCBot), deployment vessel, and MBES do not disrupt a sensitive community or habitat **no effect is likely to occur** as a result of the installation/operation. Therefore, the physical impact mechanism is **screened out** of further assessment.

Overall, the effect to the bay area will be temporary navigation of surface waters. However, there is potential for survey activities to generate noise, vibration and increased human presence, or vessel and drone activity to be at an intensity and duration that could cause brief, temporary disturbance. This is investigated below as a potential significant effect. See **Table 6-1** and **Table 6-2** below for summary of screening outcomes.

### ***Aerial Drones***

The likelihood of the drone posing a collision risk to foraging birds and those listed as SCIs in **Table 6-1**, is not significant due to the temporary operation of the drone. A drone will be in operation on three separate occasions to conduct dye tracing surveys, and only during low water on a spring tide to perform LiDAR surveys, during the survey period and will subsequently be retrieved after each sample collection is completed. There is potential for the drone to disrupt SCI breeding if the drone operates in the vicinity of coastal habitat that seabirds are nesting/breeding on. Based on the precautionary principle, the physical impact mechanism (noise disturbance due to aerial drones) is screened in for Stage 2 of the Appropriate Assessment (NIS) and assessed in further detail for those species identified with credible SPR links in the screening for SCI and QI sections below. See **Table 6-1** and **Table 6-2** below for summary of screening outcomes.

### **Microbial dye tracing**

Dye will be released from the baseline discharge locations (existing WWTW outfall location) and will be undertaken during the ebb of spring tides and neap tides on a maximum of three occasions. Rhodamine B and Rhodamine WT are fluorescent dyes commonly used as tracers in hydrological investigations. These dyes are frequently used due to their strong fluorescence even at low concentrations.

Rhodamine WT will be used in this study because of its low environmental impact. Field, 2005 studied the ecotoxicity of fluorescent dyes, including Rhodamine WT, and found low levels of concern for concentrations under 22mg/L, and Skjolding *et al.*, 2021 found no statistically significant effects were observed ( $p < 0.05$ ) at tested concentrations (up to 91, 100 and 200 mg/L for algae, crustaceans and fish embryos, respectively). Earlier work by Parker, 1973 tested the toxicity of Rhodamine WT dye on the larval development of oysters and on juvenile salmon and trout; with concentrations up to 10mg/L over 48 hours for oysters and 375mg/L over 17.5 for fish, no mortalities or abnormalities were observed. The fish remained healthy in dye-free water when last checked a month after the test.

Dye tracing will be carried out with Rhodamine WT below the maximum allowable concentration quality standard set out in Skjolding *et al.*, 2021 of  $>910 \mu\text{g/L}$ . The effects of the microbial dye tracing are considered to **not be significant** and are therefore **screened out** for further assessment. Overall, the effect to the bay area will be temporary navigation of surface waters. However, there is potential for survey activities to generate noise, vibration and increased human presence, or vessel and drone activity to be at an intensity and duration that could cause short term, temporary disturbance. This is investigated below as an individual potential significant effect. See **Table 6-1** and **Table 6-2** below for summary of screening outcomes.

#### ***MBES (Noise disturbance)***

Different models of multi beam echo sounders are used depending on the depth of the site of interest. The “leading manufacturer” of multi beam echo sounders states that an MBES used for a depth range of 0.2-50 m would typically emit sound at a frequency of 500 kHz<sup>3</sup>. This frequency is outside the hearing threshold ranges of those described in **Table 5-1** where the highest functional frequency is 180 kHz in high frequency cetaceans. Therefore, the sound emitted by the MBES will not be heard, if the frequency emitted by the MBES falls into the 500 kHz selection, which is highly likely. The effects of underwater noise emitted by the MBES on marine mammals are considered not to be significant. As the area occupied by the MBES does not disrupt a sensitive community or habitat **no effect is likely to occur** as a result of the installation. Therefore, the physical impact mechanism (underwater noise) is **screened out** of further assessment. See **Table 6-1** and **Table 6-2** below for summary of screening outcomes.

Overall, the effect to the bay area will be temporary navigation of surface waters over the duration of the surveys. However, there is potential for survey activities to generate noise, vibration and increased

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<sup>3</sup>[kongsberg\\_application\\_note\\_discovering-the-redefined-em-series.pdf](#) (accessed: 07/05/2024)

human presence, or vessel and drone activity to be at an intensity and duration that could cause brief, temporary disturbance. This is investigated below as a potential significant effect.

### **Current Meters (*Noise disturbance*)**

Acoustic Doppler Current Profilers (ADCPs) are static, seabed-mounted instruments that emit low-power, highly localised acoustic signals, typically operating within the 300–1200 kHz<sup>4,5</sup> and some at 5 Hz or below<sup>6</sup>. frequency range. This frequency range lies entirely above the known hearing thresholds of pinnipeds and odontocetes present in Irish waters (**Table 5-1**) therefore, direct auditory detection of ADCP emissions is unlikely and no injury or masking effects are anticipated

Deployment and recovery of ADCPs require brief and infrequent vessel access and handling activities, generating only short-term, localised noise comparable to routine background vessel activity in the receiving environment. Such effects are not considered to represent a meaningful source of disturbance. The effects of underwater noise emitted by the current meters on marine mammals are considered to not be significant and are therefore **screened out** of further assessment. See **Table 6-1** and **Table 6-2** below for summary of screening outcomes.

### **Noise, vibration and increased human presence**

Given the marine nature of the surveys listed above, there is potential for physical disturbance to marine mammals via the presence of vessels and surveyors conducting the operations described above. Impacts due to the equipment and surveys themselves do not pose a significant risk to marine mammal species, however there is potential that disturbance during the operations may occur. Based on the precautionary principle, the physical impact mechanism (physical disturbance and above water noise during survey activity) is screened in for Stage 2 of the Appropriate Assessment (NIS) and assessed in further detail for those species identified with credible SPR links in the screening for SCI and QI sections below. See **Table 6-1** and **Table 6-2** below for summary of screening outcomes.

### **Barrier to Connectivity**

Potential for temporary acoustic barriers to connectivity for mobile species such as salmon from vessel noise and associated disturbance from survey activity. Disturbance to migratory salmon could indirectly affect pearl mussel recruitment, as a percentage of the species depends on salmonid hosts for larval development (Moorkens, 2000). Based on the precautionary principle, the physical impact

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<sup>4</sup> <https://www.nortekgroup.com/products> (accessed: 07/05/2024)

<sup>5</sup> <https://www.rowetechinc.com/adcp/> (accessed: 07/05/2024)

<sup>6</sup> [InterOcean Spherical Solid State Sensor Current Meter S4 series — BODC Document 40555](#) (accessed: 07/05/2024)

mechanism is screened in for Stage 2 of the Appropriate Assessment (NIS) and assessed in further detail for those species identified with credible SPR links in the screening for SCI and QIs below. See **Table 6-1** and **Table 6-2** below for summary of screening outcomes.

### 6.1.2.1. Screening for SCI

**Table 6-1: Identification of relevant European sites, their qualifying interests and site-specific conservation objectives. Those Qualifying Interests marked in bold have been screened in for Stage 2 appropriate assessment (NIS).**

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Connection (Source-Pathway-Receptor (SPR) model)	Site screened in/out (yes/no)
Falcarragh to Meenlaragh SPA [004149]	Overlap with proposed MUL area and SPA.	<b>Corncrake (<i>Crex crex</i>) [A122]</b>	Yes – possible foraging near shore due to potential suitable habitat identified through CORINE land cover 2018.	Yes - short-term disturbance to SCI breeding sites within intertidal and coastal areas may occur due to drone activity during surveys
Inishbofin, Inishdooney and Inishbeg SPA [004083]	Overlap with proposed MUL area and SPA.	Corncrake ( <i>Crex crex</i> ) [A122] Barnacle Goose ( <i>Branta leucopsis</i> ) [A045]	No	No
		<b>Common Gull (<i>Larus canus</i>) [A182]</b> <b>Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]</b> <b>Arctic Tern (<i>Sterna paradisaea</i>) [A194]</b>	Yes – surface feeder and potential for foraging in proposed MUL area.	Yes - short-term disturbance to SCI breeding sites within intertidal and coastal areas may occur due to drone activity during surveys
Horn Head to Fanad Head SPA 004194	Overlap with proposed MUL area and SPA.	Chough ( <i>Pyrrhocorax pyrrhocorax</i> ) [A346] Peregrine ( <i>Falco peregrinus</i> ) [A103] Barnacle Goose ( <i>Branta leucopsis</i> ) [A045] Greenland White-fronted Goose ( <i>Anser albifrons flavirostris</i> ) [A395] Razorbill ( <i>Alca torda</i> ) [A200] Guillemot ( <i>Uria aalge</i> )	No	No

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Connection (Source-Pathway-Receptor (SPR) model)	Site screened in/out (yes/no)
		[A199] Fulmar ( <i>Fulmarus glacialis</i> ) [A009] Kittiwake ( <i>Rissa tridactyla</i> ) [A188]		
		<b>Cormorant (<i>Phalacrocorax carbo</i>) [A017]</b> <b>Shag (<i>Phalacrocorax aristotelis</i>) [A018]</b>	Yes – possible foraging (Woodward <i>et al.</i> , 2024)	Yes - short-term disturbance to SCI breeding sites within intertidal and coastal areas may occur due to drone activity during surveys
Tory Island SPA [004073]	c. 5 km	Corncrake ( <i>Crex crex</i> ) [A122] Razorbill ( <i>Alca torda</i> ) [A200] Fulmar ( <i>Fulmarus glacialis</i> ) [A009] Puffin ( <i>Fratercula arctica</i> ) [A204]	No	No
Derryveagh and Glendowan Mountains SPA [004039]	c. 5 km	Red-throated Diver ( <i>Gavia stellata</i> ) [A001] Merlin ( <i>Falco columbarius</i> ) [A098] Peregrine ( <i>Falco peregrinus</i> ) [A103] Golden Plover ( <i>Pluvialis apricaria</i> ) [A140] Dunlin ( <i>Calidris alpina schinzii</i> ) [A466]	No	No
Greers Isle SPA 004082	c. 19 km	<b>Common Gull (<i>Larus canus</i>) [A182]</b>	Yes – possible foraging (Woodward <i>et al.</i> , 2024)	Yes - short-term disturbance to SCI breeding sites within intertidal and coastal areas may occur due to drone activity during surveys

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Connection (Source-Pathway-Receptor (SPR) model)	Site screened in/out (yes/no)
		Black-headed Gull ( <i>Chroicocephalus ridibundus</i> ) [A179] Sandwich Tern ( <i>Thalasseus sandvicensis</i> ) [A863]	No	No
West Donegal Coast SPA [004150]	c. 6 km	<b>Herring Gull (<i>Larus argentatus</i>) [A184]</b> <b>Cormorant (<i>Phalacrocorax carbo</i>) [A017]</b> <b>Shag (<i>Phalacrocorax aristotelis</i>) [A018]</b>	<b>Yes – possible foraging (Woodward <i>et al.</i>, 2024)</b>	<b>Yes - short-term disturbance to SCI breeding sites within intertidal and coastal areas may occur due to drone activity during surveys</b>
		Peregrine ( <i>Falco peregrinus</i> ) [A103] Chough ( <i>Pyrrhocorax pyrrhocorax</i> ) [A346] Razorbill ( <i>Alca torda</i> ) [A200] Fulmar ( <i>Fulmarus glacialis</i> ) [A009] Kittiwake ( <i>Rissa tridactyla</i> ) [A188]	No	No
West Donegal Islands SPA [004230]	c. 6 km	<b>Common Gull (<i>Larus canus</i>) [A182]</b> <b>Herring Gull (<i>Larus argentatus</i>) [A184]</b> <b>Shag (<i>Phalacrocorax aristotelis</i>) [A018]</b>	<b>Yes – possible foraging (Woodward <i>et al.</i>, 2024)</b>	<b>Yes - short-term disturbance to SCI breeding sites within intertidal and coastal areas may occur due to drone activity during surveys</b>
		Barnacle Goose ( <i>Branta leucopsis</i> ) [A045]	No	No

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Connection (Source-Pathway-Receptor (SPR) model)	Site screened in/out (yes/no)
		Corncrake ( <i>Crex crex</i> ) [A122]		

### 6.1.2.2. Screening for QI

**Table 6-2: Identification of relevant European sites, their qualifying interests and site-specific conservation objectives. Those Qualifying Interests marked in bold have been screened in for Stage 2 appropriate assessment (NIS).**

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Connection (Source-Pathway-Receptor (SPR) model)	Site screened in/out (yes/no)
Ballyness Bay SAC [001090]	Overlap with proposed MUL area and SAC	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Humid dune slacks [2190] <i>Vertigo geyeri</i> (Geyer's Whorl Snail) [1013]	No	No
Horn Head and Rinclevan SAC [000147]	Overlap with proposed MUL area and SAC	<b><i>Halichoerus grypus</i> (Grey Seal) [1364]</b>	<b>Yes – environmental surveys within site boundary of selected species</b>	<b>Yes – possible visual and above water noise disturbance</b>
		Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Dunes with <i>Salix repens</i> ssp. <i>argentea</i> ( <i>Salicion arenariae</i> ) [2170] Humid dune slacks [2190]	No	No

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Connection (Source-Pathway-Receptor (SPR) model)	Site screened in/out (yes/no)
		Machairs (* in Ireland) [21A0] Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> [3130] <i>Vertigo geyeri</i> (Geyer's Whorl Snail) [1013] <i>Petalophyllum ralfsii</i> (Petalwort) [1395] <i>Najas flexilis</i> (Slender Naiad) [1833]		
Gweedore Bay and Islands SAC [001141]	c. 2 km	<b>Otter (<i>Lutra lutra</i>) [1355]</b>	<b>Yes – environmental surveys within site boundary of selected species</b>	<b>Yes – possible above water noise disturbance</b>
		Coastal lagoons [1150] Reefs [1170] Perennial vegetation of stony banks [1220] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> ) [1330] Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) [1410] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Decalcified fixed dunes with <i>Empetrum nigrum</i> [2140] Atlantic decalcified fixed dunes ( <i>Calluno-Ulicetea</i> ) [2150] Dunes with <i>Salix repens</i> ssp. <i>argentea</i> ( <i>Salicion arenariae</i> ) [2170] Humid dune slacks [2190] Machairs (* in Ireland) [21A0] Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> [3130] European dry heaths [4030] Alpine and Boreal heaths [4060] <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130]	No	No

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Connection (Source-Pathway-Receptor (SPR) model)	Site screened in/out (yes/no)
		<i>Euphydryas aurinia</i> (Marsh Fritillary) [1065] <i>Petalophyllum ralfsii</i> (Petalwort) [1395] <i>Najas flexilis</i> (Slender Naiad) [1833] <i>Phocoena phocoena</i> (Harbour Porpoise) [1351]		
Tory Island Coast SAC [002259]	c. 5 km	Coastal lagoons [1150] Reefs [1170] Perennial vegetation of stony banks [1220] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Submerged or partially submerged sea caves [8330]	No	No
Sheephaven SAC [001190]	c. 7 km	Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] <i>Salicornia</i> and other annuals colonising mud and sand [1310] Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> ) [1330] Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) [1410] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Humid dune slacks [2190] Machairs (* in Ireland) [21A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] <i>Euphydryas aurinia</i> (Marsh Fritillary) [1065] <i>Petalophyllum ralfsii</i> (Petalwort) [1395]	No	No
Mulroy Bay SAC [002159]	c. 13 km	Mudflats and sandflats not covered by seawater at low tide [1140] Large shallow inlets and bays [1160] <i>Lutra lutra</i> (Otter) [1355] Reefs [1170]	No	No

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Connection (Source-Pathway-Receptor (SPR) model)	Site screened in/out (yes/no)
Slieve Tooley/Tormore Island/Loughros Beg Bay SAC [site code: 000190]	c. 50 km	<b><i>Halichoerus grypus</i> (Grey Seal) [1364]</b>	Yes – surveys within grey seal mean foraging range (50.85 km – Cronin <i>et al.</i> , 2011)	Yes – possible visual and above water noise disturbance
		Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> ) [1330] Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) [1410] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Decalcified fixed dunes with <i>Empetrum nigrum</i> [2140] Atlantic decalcified fixed dunes ( <i>Calluno-Ulicetea</i> ) [2150] Dunes with <i>Salix repens</i> ssp. <i>argentea</i> ( <i>Salicion arenariae</i> ) [2170] Humid dune slacks [2190] Alpine and Boreal heaths [4060] Blanket bogs (* if active bog) [7130] <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014] <i>Lutra lutra</i> (Otter) [1355]	No	No
West of Ardara/Maas Road SAC [site code: 000197]	c. 50 km	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Large shallow inlets and bays [1160] Annual vegetation of drift lines [1210] Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> ) [1330] Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) [1410] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Decalcified fixed dunes with <i>Empetrum nigrum</i> [2140] Atlantic fixed ( <i>Calluno-Ulicetea</i> ) [2150] Dunes with <i>Salix repens</i> ssp. <i>argentea</i> ( <i>Salicion arenariae</i> ) [2170]	No	No

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Connection (Source-Pathway-Receptor (SPR) model)	Site screened in/out (yes/no)
		<p>Humid dune slacks [2190]  Machairs (* in Ireland) [21A0]  Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) [3110]  Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> [3130]  Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010]  European dry heaths [4030]  Alpine and Boreal heaths [4060]  <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130]  Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco- Brometalia</i>) (* important orchid sites) [6210]  Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410]  Lowland hay meadows (<i>Alopecurus pratensis</i>, <i>Sanguisorba officinalis</i>) [6510]  Blanket bogs (* if active bog) [7130] Depressions on peat substrates of the Rhynchosporion [7150]  Alkaline fens [7230]  <i>Vertigo geyeri</i> (Geyer's Whorl Snail) [1013]  <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029]  <i>Euphydryas aurinia</i> (Marsh Fritillary) [1065]  <i>Salmo salar</i> (Salmon) [1106]  <i>Lutra lutra</i> (Otter) [1355]  <i>Phoca vitulina</i> (Harbour Seal) [1365]  <i>Petalophyllum ralfsii</i> (Petalwort) [1395]  <i>Najas flexilis</i> (Slender Naiad) [1833]</p>		
Cloghernagore Bog and Glenveagh	c. 7 km	<p><b><i>Lutra lutra</i> (Otter) [1355]</b>  <b><i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029]</b>  <b><i>Salmo salar</i> (Salmon) [1106]</b></p>	<p><b>Yes – site in otter foraging range.</b>  <b>Yes – SPR identified through examining river network routes.</b></p>	<p><b>Yes – possible above water noise disturbance</b></p>

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Connection (Source-Pathway-Receptor (SPR) model)	Site screened in/out (yes/no)
National Park SAC [site code: 002047]				Yes – potential barrier to connectivity and recruitment disruption
		<p>Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) [3110]</p> <p>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260]</p> <p>Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010]</p> <p>European dry heaths [4030]</p> <p>Alpine and Boreal heaths [4060]</p> <p>Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410]</p> <p>Blanket bogs (* if active bog) [7130]</p> <p>Depressions on peat substrates of the Rhynchosporion [7150]</p> <p>Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]</p> <p><i>Vandenboschia speciosa</i> (Killarney Fern) [6985]</p>	No	No
Fawnboy Bog/Lough Nacung SAC [000140]	c. 6 km	<b><i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029]</b>	Yes – SPR identified through examining river network routes.	Yes – potential recruitment disruption if barrier to connectivity is present to salmonids
		<p>Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010]</p> <p>Blanket bogs (* if active bog) [7130]</p> <p>Depressions on peat substrates of the Rhynchosporion [7150]</p>	No	

European site and site code	Distance from proposed MUL area (km)	Qualifying Interests	Connection (Source-Pathway-Receptor (SPR) model)	Site screened in/out (yes/no)
Rutland Island and Sound SAC [002283]	c. 22 km	<b><i>Phoca vitulina</i> (Harbour Seal) [1365]</b>	<b>Yes – surveys within harbour seal mean foraging range (33.65 km, Sharples <i>et al.</i> (2012))</b>	<b>Yes – possible visual and above water noise disturbance</b>
		Coastal lagoons [1150] Large shallow inlets and bays [1160] Reefs [1170] Annual vegetation of drift lines [1210] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Humid dune slacks [2190]	No	No
Lough Swilly SAC 002287	c. 45 km	Estuaries [1130] Coastal lagoons [1150] Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> ) [1330] Molinia meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinion caeruleae</i> ) [6410] Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] <i>Lutra lutra</i> (Otter) [1355] <i>Phocoena phocoena</i> (Harbour Porpoise) [1351]	No	No

### **6.1.3. Summary**

Given the nature, duration, and spatial extent of the proposed works associated with the Project, the potential for likely significant effects to pinnipeds (harbour and grey seal), otter, salmon, freshwater pearl mussel, corn crex, common gull, lesser black-backed gull, arctic tern, cormorant, shag, and herring gull cannot be excluded based on the precautionary principle. The Project will proceed to Stage 2 of the Appropriate Assessment (Natura Impact Statement).

## 6.2. **Plans or Projects That Might Act In Combination**

As outlined in above the obligation to undertake AA under the 2011 Birds and Natural Habitats Regulations derives from the Habitats Directive. Regulation 42(1) of the 2011 Regulations requires that:

*A screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or **in combination with other plans or projects** is likely to have a significant effect on the European site.*

It is therefore required that the potential impacts of the proposed Project be considered in combination with other relevant plans or projects. Given the nature of the proposed activities associated with the Project, the potential project impact mechanisms (or sources of impact) are:

1. Physical presence of flow gauges in environment
2. Physical presence of tidal gauges in environment
3. Physical presence of current meters in environment
4. Physical presence associated with deployment and operation of hydro-drone, ARCBoat and MBES
5. Noise emissions associated with MBES operations
6. Visual and noise disturbance associated with the aerial drone
7. Above-water noise and visual disturbance associated with vessel/survey operations
8. Barrier to connectivity due to survey operations.

The assessment of potential in-combination effects considers other plans and projects that may result in cumulative significant effects to QIs and SCIs of SACs and SPAs. The identification of plans and projects for the in-combination assessment was informed by professional judgement, having regard to the nature, scale and temporary character of the proposed Project, the impact pathways identified (vessel and drone related above water visual and noise disturbance), and the ecological sensitivity and mobility of relevant qualifying interests and special conservation interests.

In completing this assessment, regard was also had to the Appropriate Assessment Screening and Determination undertaken by the Maritime Area Regulatory Authority (MARA) for the proposed Project. In that determination, MARA defined a cumulative effects spatial scope of 10 km, based on JNCC guidance on acoustic disturbance to mobile marine receptors, and concluded that no other plans

or projects within that scope had the potential to act in combination with the proposed maritime usage

To inform the assessment of potential in-combination effects, a review of consent applications for projects in the vicinity of the proposed Project included on the following websites was completed in April 2024:

- Maritime Area Regulatory Authority
  - <https://www.maritimeregulator.ie/our-work/maritime-usage-licences/applications/>
- DHPLG - EIA Portal
  - <https://www.housing.gov.ie/planning/environmental-assessment/environmental-impact-assessment-eia/eia-portal>
- Donegal County Council - Planning System
  - <https://www.eplanning.ie/DonegalCC/searchresults>
  - <https://donegal.maps.arcgis.com/apps/webappviewer/index.html?id=8be91e332a8f47bfbbe83add1550c666>

The assessment of potential in-combination effects also considered *negative impacting threats and pressures* and *positive impacting activities/management* affecting the sites as identified in Natura 2000 forms published for the SPA and SAC sites available through the NPWS website (<https://www.npws.ie/protected-sites>).

Screening assessments of potential cumulative or in-combination effects from current and proposed projects listed on above websites are summarised in **Table 6-3**.

In summary, the assessments presented in **Table 6-3** conclude that there is no potential likelihood for significant effects caused by cumulative or in-combination effects.

It was concluded that there is **no potential likelihood for significant effects from the proposed Project in combination with other plans or projects**.

**Table 6-3: Assessment of potential in-combination effects.**

Website	Project Details	File Reference	Date Application Received	Assessment of Potential Cumulative or In-combination Effects	Conclusion
<b>DHPLG - EIA Portal</b>	A search of the DHPLG EIA Portal was undertaken to examine projects with potential for in-combination effects.	2021034	19/2/2021	Though a 25-year permission for extraction and blasting of rock and screening plant occurs near the vicinity of Falcarragh, due to the distance and mitigation in place for the rock works it was determined that there was no potential for significant cumulative or in combination effects to occur with the proposed Project.	No potential significant cumulative or in-combination effects
<b>Donegal County Council - Planning System</b>	A search of the Donegal planning databases was undertaken to examine projects with potential for in-combination effects.	-	-	Applications made typically to Donegal County Council and published on the planning database consisted of extensions and renovations to existing houses, and retention of existing developments. These are small-scale terrestrial developments which do not have the potential to result in cumulative effects in combination with the proposed Project.	No potential significant cumulative or in-combination effects
<b>DHLGH – Foreshore Applications and Aquaculture Licences Appeals Board ALAB</b>	A search of the DHLGH Foreshore applications and ALAB website was conducted to examine any projects in the appeals system with potential for in combination effects.			No foreshore applications were noted within a ZoI for the Ballyness Bay project sites. An original application for shellfish aquaculture in Ballyness Bay was for 20 sites with only 18 subsequently sent forward for planning. The Minister for Agriculture, Food and the Marine granted licencing for 14 of these sites and refused licencing for the remaining four. Given the non-invasive nature of the marine surveys outlined above their potential for cumulative effects with the proposed aquaculture sites is not significant.	No potential significant cumulative or in-combination effects

### 6.3. Screening Outcome

The current assessment investigates the potential for the proposed Project to have significant effects on European Sites within the Natura 2000 network.

The assessment has determined, in light of best available scientific data, that potential for significant effects on the SACs and any SPAs from the proposed Project *i.e.* the likelihood of significant effects on all European sites, cannot be ruled out at the Stage 1 screening for appropriate assessment for the following impact mechanisms:

- Visual and noise disturbance associated with the aerial drone
- Above-water noise and visual disturbance associated with vessel/survey operations
- Barrier to connectivity due to survey operations.

As such, the conservation features and relevant impact mechanism(s) (**Table 6-1; Table 6-2**) are brought forward to stage 2 of the Appropriate Assessment (NIS) for a detailed consideration of the potential for adverse effects.

The assessment determined that there is no potential likelihood for significant effects from the proposed Project in combination with other plans or projects. The findings of the assessment are summarised in **Table 6-4**.

**Table 6-4: Screening matrix of the proposed Project**

Screening Matrix	
Brief description of the Project or plan	The objective of the Project is to deploy, install and operate numerous pieces of equipment for marine surveys for Uisce Éireann records in Ballyness Bay, Falcarragh, Co. Donegal ( <b>Figure 1-1, Figure 1-2, Figure 1-3</b> ). The Project comprises the deployment, installation and operation of the survey equipment throughout the bay area with the aim to collect meteorological, tidal, current, river flow, bathymetric, water quality and dye tracing data of the area. See <b>Section 1.1</b> for details on survey equipment deployment and associated timeframes.
European Site(s)	
Brief description of the European site(s)	Adopting a precautionary principle, the following European sites were considered in this screening for AA; the sites are: <ul style="list-style-type: none"> <li>• Ballyness Bay SAC (Site code: 001090)</li> <li>• Horn Head and Rinclevan SAC (Site code: 000147)</li> <li>• Gweedore Bay and Islands SAC (site code: 001141)</li> <li>• Tory Island Coast SAC (site code: 002259)</li> <li>• Sheephaven SAC (site code: 001190)</li> <li>• Mulroy Bay SAC (site code: 002159)</li> </ul>

	<ul style="list-style-type: none"> <li>• Slieve Tooley/Tormore Island/Loughros Beg Bay SAC (site code: 000190)</li> <li>• West of Ardara/Maas Road SAC (site code: 000197)</li> <li>• Cloghernagore Bog and Glenveagh National Park SAC (site code: 002047)</li> <li>• Rutland Island and Sound SAC (site code: 002283)</li> <li>• Lough Swilly SAC (site code: 002287)</li> <li>• Falcarragh to Meenlaragh SPA (site code: 004149)</li> <li>• Inishbofin, Inishdooney and Inishbeg SPA (site code: 004083)</li> <li>• Horn Head to Fanad Head SPA (site code: 004194)</li> <li>• Tory Island SPA (site code 004073)</li> <li>• Derryveagh and Glendown Mountains SPA (site code: 004039)</li> <li>• Greers Isle SPA (site code: 004082)</li> <li>• West Donegal Coast SPA (site code: 004150)</li> <li>• West Donegal Islands SPA (site code: 004230)</li> </ul> <p>The QIs of the above SACs and SPAs are listed in <b>Table 4-1</b> and <b>Table 4-2</b> alongside conservation objectives set for the conservation features.</p> <p>In addition, because Annex II marine mammal species are highly mobile and may undertake foraging and movement over large distances (with recorded maximum ranges up to 200–220 km), all SACs in Ireland designated for the following Annex II species were considered:</p> <ul style="list-style-type: none"> <li>• Harbour porpoise (<i>Phocoena phocoena</i>)</li> <li>• Bottlenose dolphin (<i>Tursiops truncatus</i>)</li> <li>• Grey seal (<i>Halichoerus grypus</i>)</li> <li>• Harbour seal (<i>Phoca vitulina</i>)</li> </ul> <p>These SACs were considered irrespective of distance from the Project area, in order to apply the precautionary principle and ensure all potential ecological connectivity routes were evaluated. Where a relevant source – pathway - receptor linkage could not be excluded, sites were taken forward for further assessment.</p> <p>The outcomes of this screening process are presented in <b>Table 6-1–Table 6-2</b>, which identify those European sites and conservation features for which likely significant effects could not be excluded at the Stage 1.</p>
<b>Assessment Criteria</b>	
<p>Describe the individual elements of the Project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European site.</p>	<p>Given the nature of the proposed activities associated with the Project as detailed in <b>Section 1.1</b>, the potential project impact mechanisms (or sources of impact) are:</p> <ol style="list-style-type: none"> <li>1. Visual/above-water noise disturbance</li> <li>2. Barrier to connectivity</li> </ol> <p>It is concluded that there is a credible pathway between the project impact mechanisms and the QIs and SCIs of SACs and SPAs. The assessments are presented in full in <b>Section 6.1</b>.</p>

<p>Describe any likely direct, indirect or secondary impacts of the Project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of</p> <p>Size and scale, Land-take.</p>	<p>The assessment of potential in-combination effects considers other plans and projects, which may result in cumulative significant effects on QIs and SCIs of SACs and SPAs. In summary, the assessments presented <b>Table 6-3</b> conclude that there is no potential likelihood for significant effects caused by cumulative or in-combination effects.</p>
<p>Distance from the Natura 2000 site or key interests of the site;</p>	<p>The majority of the proposed deployment sites lie inside Ballyness Bay SAC, with some being located within the Inishbofin, Inishdooley and Inishbeg SPA. <b>Table 6-1</b> and <b>Table 6-2</b> summarise the SACs and SPAs alongside the approximate distance.</p>
<p>Resource requirements (water abstraction etc.);</p>	<p>Deployment of the marine survey equipment requires little service maintenance. See <b>Section 1.1</b> for details on survey equipment deployment and associated timeframes. No resources will be required for the Project.</p>
<p>Emissions (disposal to land, water or air);</p>	<p>Noise emissions from operation of current meters and an MBES.</p> <p>Rhodamine WT microbial dye</p>
<p>Excavation requirements,</p> <p>Transportation requirements;</p>	<p><b>Excavation requirements</b></p> <p>No excavation will be required</p> <p><b>Transportation requirements</b></p> <p>All survey equipment, except for the weather stations, will require boating transport for deployment at the sites throughout the bay. A work vehicle will be required to transport the weather stations.</p>
<p>Duration of construction, operation, Decommissioning, Other;</p>	<p>Details on survey equipment and associated timeframes for the proposed Project are provided above in <b>Section 1.1</b>. Upon completion of the surveys, the marine survey equipment will be retrieved wherein all equipment will leave the Project area. It is anticipated that deployment operations will commence in 2026.</p>
<p>Describe any likely changes to the site arising as a result of:</p> <p>Reduction in habitat area;</p> <p>Disturbance to key species;</p> <p>Habitat or species fragmentation;</p> <p>Reduction in species density;</p> <p>Changes in key indicators of conservation value (water quality etc.).</p> <p>Climate change</p>	<p>It is concluded that there is no potential likelihood for significant effects caused by the Project in isolation or in combination with other plans and projects regarding the following aspects of SACs and SPAs:</p> <ul style="list-style-type: none"> <li>• Reduction in habitat area</li> <li>• Habitat or species fragmentation</li> <li>• Reduction in species density</li> <li>• Water quality</li> </ul> <p>Potential likelihood for significant effects caused by the Project in isolation or in combination with other plans and projects regarding the following aspects of SACs and SPAs cannot be excluded at Stage 1:</p> <ul style="list-style-type: none"> <li>• Disturbance to key species</li> </ul> <p>With regard effect to climate change, the main source of atmospheric emissions from the proposed Project will result from engine exhaust gases from engines associated with the vessel. Given the limited vessel activity proposed, significant effects on climate from atmospheric emissions can be discounted.</p>

<p>Provide indicators of significance as a result of the identification of effects set out above in terms of:</p> <p>Loss; Fragmentation; Disruption; Disturbance; Change to key elements of the site.</p>	<p>Indicators of significance are loss of SCI and QI species and habitats.</p> <p>Indicators of significance are behavioural changes in SCI and QI species.</p> <p>It is concluded that there is potential likelihood for significant effects (disturbance) caused by the Project in isolation or in combination with other plans and projects.</p>
<p>Describe from the above those elements of the Project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.</p>	<p>Potential visual and above-water noise disturbance from survey operations and vessel activity, and a theoretical risk of acoustic interference with wild salmonid migration, have been identified as sources of uncertainty and as such significant effects cannot be excluded under the precautionary principle.</p>

**Outcome:** The screening matrix above concluded that there is potential likelihood for significant effects to conservation objectives of Natura 2000 sites caused by the Project in isolation or in combination with other plans and projects. The Project proceeds to stage 2 of the Appropriate Assessment (NIS) for a detailed consideration of the potential for adverse effects on the following impact mechanisms

- Visual and above water disturbance associated with vessel/survey activities.
- Visual and above water noise disturbance associated with aerial drone activities.
- Barrier to connectivity to wild Atlantic salmon migration corridors.

All other European Sites considered during Stage 1 Appropriate Assessment have been screened out due to the absence of a credible source - pathway - receptor linkage with the proposed works.

## 7. Stage 2: Natura Impact Statement

### 7.1. Overview

Stage 2 of the Appropriate Assessment process considers whether the plan or project, alone or in combination with other projects or plans, will have adverse effects on the integrity of a European site, and includes any mitigation measures necessary to avoid, reduce or offset negative effects. The proponent of the plan or project will be required to submit a Natura Impact Statement (NIS), that examines the plan or project and the relevant European sites, to identify and characterise any possible implications for the site in view of the site's conservation objectives, accounting for in-combination effects. This should provide information to enable the competent authority to carry out the appropriate assessment. If the assessment deems that adverse effects on the integrity of a site cannot be excluded, then the process must proceed to Stage 3, or the plan or project should be abandoned.

#### 7.1.1. Background

Following submission of the original Screening for Appropriate Assessment report to the Maritime Area Regulatory Authority (MARA), a Screening Determination was issued (Reference Number: MUL230038) confirming that the competent authority could not exclude the likelihood of significant effects on certain European sites. MARA concluded that Stage 2 Appropriate Assessment was required for the Project under Article 6(3) of the Habitats Directive.

In their determination, MARA identified that the potential for significant effects relates specifically to above-water visual and noise disturbance arising from vessel activity, ARCBoat deployment and intermittent drone use. A potential barrier-to-connectivity pathway relating to Atlantic salmon migration was also identified in connection with vessel and ARCBoat movement within Ballyness Bay.

The Qualifying Interests and Special Conservation Interests screened in for Stage 2 assessment, and the European sites for which they are designated, are:

- **Harbour seal (*Phoca vitulina*)**

- Rutland Island & Sound SAC [002283]

- **Grey Seal (**

- Horn Head & Rinclevan SAC [000147]

- Slieve Tooley / Tormore Island / Loughros Beg Bay SAC [000190]

- **Otter (*Lutra lutra*)**

- Gweedore Bay & Islands SAC [001141]
- Cloghernagore Bog & Glenveagh National Park SAC [002047]

- **Atlantic salmon (*Salmo salar*)**

- Cloghernagore Bog & Glenveagh National Park SAC [002047]

- **Freshwater pearl mussel (*Margaritifera margaritifera*)**

- Cloghernagore Bog & Glenveagh National Park SAC [002047], Fawnboy Bog/Lough Nacung SAC [000140]

- **Special Conservation Interest birds (SCIs):**

- Falcarragh to Meenlaragh SPA [004149] - Corncrake (*Crex crex*) [A122]
- Horn Head to Fanad Head SPA [004194] - fulmar (*Fulmaris glacialis*) [A009], shag (*Phalacrocorax aristotelis*) [A018], Barnacle Goose (*Branta leucopsis*) [A045], peregrine (*Falco peregrinus*) [A103], kittiwake (*Rissa tridactyla*) [A188], guillemot (*Uria aalge*) [A199], razorbill (*Alca torda*) [A200], chough (*Pyrrhocorax pyrrhocorax*) and Greenland white-fronted goose (*Anser albifrons flavirostris*) [A395]
- Greer's Isle SPA [004082] - black-headed gull (*Chroicocephalus ridibundus*) [A179], common gull (*Larus canus*) [A182] and sandwich tern (*Thalasseus sandvicensis*) [A863]
- West Donegal Coast SPA [004150] - fulmar (*Fulmaris glacialis*) [A009], cormorant (*Phalacrocorax aristotelis*) [A018], shag (*Phalacrocorax aristotelis*) [A018], peregrine (*Falco peregrinus*) [A103], kittiwake (*Rissa tridactyla*) [A188], guillemot (*Uria aalge*) [A199], razorbill (*Alca torda*) [A200], chough (*Pyrrhocorax pyrrhocorax*)
- West Donegal Islands SPA [004230] - shag (*Phalacrocorax aristotelis*) [A018], Barnacle Goose (*Branta leucopsis*) [A045], corncrake (*Crex crex*) [A122], common gull (*Larus canus*) [A182], and herring gull (*Larus argentatus*) [A184]
- Inishbofin, Inishdooney & Inishbeg SPA [004083] — Common Gull (*Larus canus*) [A182], Lesser Black-backed Gull (*Larus fuscus*) [A183], Arctic Tern (*Sterna paradisaea*) [A194]

This NIS gives a detailed ecological assessment of European sites and their associated conservation features, considering inter alia site-specific or activity-specific impacts. In preparation of this NIS, the NPWS-DELGH (2009; revised 2010)/NPWS-DAHG (2012) guidance document on marine NIS in SACs was used.

In line with NPWS-DEHLG (2009; revised 2010) guidance, the Stage 2 AA consists of three main steps:

1. **Impact Prediction** - where the likely impacts of the Project are examined. A source-pathway-receptor model has been used to assess potential for impact.
2. **Assessment of Effects** – where the effects of the Project are assessed as to whether they have any adverse effects on the integrity of European Sites as defined by conservation objectives.
3. **Mitigation Measures** – where mitigation measures are identified to ameliorate any adverse effects on the integrity of any European site.

## 7.2. **Impact Prediction**

The following sections assess the potential for impacts arising from the impact mechanisms that were screened in at Stage 1 Appropriate Assessment Screening. The assessment considers whether these mechanisms, either alone or in combination with other plans or projects, could adversely affect the integrity of European sites, having regard to their conservation objectives and best available scientific knowledge.

Based on the Stage 1 screening outcomes, the following impact mechanisms are considered in Stage 2:

- Visual and above-water disturbance associated with vessel presence, ARCBoat deployment, survey operations and intermittent aerial drone operations
- Potential barrier-to-connectivity effects relating to vessel movement and survey activity within Ballyness Bay.

These impact mechanisms have a potential source–pathway–receptor linkage with Annex II species, including marine mammals and otter, which are qualifying interests of several Special Areas of Conservation (SACs) considered in this assessment, as well as Special Conservation Interest (SCI) bird features of overlapping Special Protection Areas (SPAs).

**Sections 7.2.1** and **7.2.2** provide a detailed assessment of the screened-in impact mechanisms in relation to the relevant conservation features.

### 7.2.1. **Potential Impact Mechanism – Visual and Above Water Noise Disturbance**

#### 7.2.1.1. **Potential Receptors**

##### **Habitats Directive (Annex II) Marine Mammals**

Potential receptors of above-water disturbance include mobile qualifying interests for which relevant SACs are designated, namely harbour seal (*Phoca vitulina*) within Rutland Island & Sound SAC

[002283], Grey seal (*Halichoerus grypus*) within Horn Head & Rinclevan SAC [000147] and Slieve Tooley/Tormore Island/Loughros Beg Bay SAC [000190] and otter (*Lutra lutra*) within Gweedore Bay & Islands SAC [001141] and Cloghernagore Bog & Glenveagh National Park SAC [002047]. These receptors may detect the presence of survey vessels, the ARCBoat and intermittent drone operations occurring within Ballyness Bay and adjacent offshore waters.

### **Otter (*Lutra lutra*) — Gweedore Bay & Islands SAC [001141] and Cloghernagore Bog & Glenveagh National Park SAC [002047]**

The Eurasian otter (*Lutra lutra*) is a qualifying interest of Gweedore Bay & Islands SAC [001141] (NPWS, 2015a) and Cloghernagore Bog & Glenveagh National Park SAC [002047] (NPWS, 2017). NPWS conservation objectives documents for these sites confirm that otter occurs widely along the north Donegal coastline, using coastal waters, estuaries and rivers for foraging and movement.

According to the National Biodiversity Data Centre (NBDC, 2025), the available records of otter presence in the area are from Dooley Peninsula and the inner bay from 1991; these records are considered outdated and are not regarded as relevant to current baseline conditions, however they do not preclude the potential presence of otter within the area. No otter holts or couches are recorded within the intertidal or shoreline habitats directly overlapping the marine Project footprint in NPWS site documentation or the available NBDC dataset. Given the suitability of nearby shoreline and estuarine habitats, it is reasonable to assume that otter may use Ballyness Bay intermittently for foraging and transit, but the area is not identified as supporting known breeding holts or key resting sites for the qualifying interest.

### **Pinnipeds**

Common seals and grey seals are resident pinniped species commonly found throughout Irish waters. Both seal species have terrestrial colonies (haul-out sites) along the coast of Ireland. The species use haul-out sites to rest, rear young, engage in social activity, etc. The species leave the haul-out sites to forage and move between sites. Huon *et al.* (2021) found that while both seal species are capable of voyaging on far-ranging trips, selection of foraging habitat was influenced by local conditions and was found to be based predominately on distance from the last haul-out site and bathymetry.

### **Common (harbour) seal (*Phoca vitulina*) - Rutland Island & Sound SAC [002283]**

Harbour seal is a qualifying interest of Rutland Island & Sound SAC [002283] (NPWS, 2013). NPWS conservation objectives confirm the presence of important haul-out and foraging areas within this sites.

Telemetry studies (Thompson *et al.*, 1998; Tollit *et al.*, 1998; Sharples *et al.*, 2012) demonstrate that harbour seals routinely forage tens of kilometres from haul-outs, indicating that individuals associated with these SACs may occur in Ballyness Bay. Regional surveys (Morris & Duck, 2019) confirm low harbour seal abundance along the north Donegal coast, including occasional records from waters adjacent to Ballyness Bay. No haul-out sites overlap the Project footprint, and the bay is considered part of a wider foraging range rather than a core haul-out or breeding area.

### **Grey seal (*Halichoerus grypus*) - Horn Head & Rinclevan SAC [000147] and Slieve Tooney/Tormore Island/Loughros Beg Bay SAC [000190]**

Grey seal is a qualifying interest of Horn Head & Rinclevan SAC [000147] (NWPS, 2024a) and Slieve Tooney/Tormore Island/Loughros Beg Bay SAC [000190] (NWPS, 2015b). NPWS site documentation confirms the presence of important haul-out and breeding sites within these SACs, particularly around Horn Head.

Telemetry and movement studies (Cronin *et al.*, 2011; Huon *et al.*, 2021) confirm extensive foraging ranges in nearshore and offshore waters. Regional survey data (Morris & Duck, 2019) indicate increasing grey seal numbers along the north Donegal coast. Ballyness Bay lies within this wider foraging range and although the bay is not identified in NPWS conservation objective mapping (NPWS, 2015b) as a designated grey seal haul-out site, local observations indicate that grey seals may occasionally rest on intertidal sandbars within the inner bay. The MBES survey will cover the bay; however, MBES acquisition will be undertaken on suitable tidal states such that intertidal sandbar haul-out areas are submerged at high tide when survey lines are run. In addition, survey vessels will maintain slow, steady speeds, avoid unnecessary manoeuvring, and implement a precautionary soft-approach where seals are observed, thereby avoiding close-range approaches and minimising the potential for disturbance or displacement. In combination, the temporary and intermittent nature of survey activity and the tidal timing of vessel operations ensure that any interaction with opportunistic haul-out use is unlikely, and no adverse effect on the conservation objectives for grey seal is predicted.

### **SCI Species - Birds**

Potential receptors include Special Conservation Interest (SCI) bird species for which nearby SPAs are designated. These comprise the following SPAs: Falcarragh to Meenlaragh SPA [004149], Horn Head to Fanad Head SPA [004194], Greer's Isle SPA [004082], West Donegal Coast SPA [004150], West Donegal Islands SPA [004230], and Inishbofin, Inishdooney & Inishbeg SPA [004083].

Given the nature of the proposed Project, the primary potential source of disturbance to bird species is disturbance at breeding sites associated with drone activity. However, this is unlikely to be

significant, as any drone activity restricted to marine areas and strictly limited to the duration of the surveys and will avoid coastal areas as much as possible.

**Corncrake (*Crex crex*) [A122] — Falcarragh to Meenlaragh SPA [004149]**

A summer visitor associated with tall herb and grassland habitats, including hay meadows and rough grasslands in the north-west.

**Common Gull (*Larus canus*) [A182] — Inishbofin, Inishdooney & Inishbeg SPA [004083], Greer's Isle SPA [004082], West Donegal Islands SPA [004230]**

A generalist gull species occurring along coasts, wetlands, farmland and urban areas, feeding on invertebrates, small fish and anthropogenic food sources.

**Lesser Black-backed Gull (*Larus fuscus*) [A183] — Inishbofin, Inishdooney & Inishbeg SPA [004083]**

A coastal breeding gull associated with cliffs, islands and shoreline habitats around Ireland.

**Arctic Tern (*Sterna paradisaea*) [A194] — Inishbofin, Inishdooney & Inishbeg SPA [004083]**

A colonial breeding seabird associated with offshore islands and shingle or rocky shores, feeding by plunge-diving for small fish in coastal waters.

**Cormorant (*Phalacrocorax carbo*) [A017] — Horn Head to Fanad Head SPA [004194], West Donegal Coast SPA [004150]**

A colonial waterbird breeding on cliffs, islands or trees, and diving for fish in marine and freshwater environments.

**Shag (*Phalacrocorax aristotelis*) [A018] — Horn Head to Fanad Head SPA [004194], West Donegal Coast SPA [004150], West Donegal Islands SPA [004230]**

A marine coastal specialist breeding on rocky coasts and offshore islands and foraging predominantly in shallow nearshore waters.

**Herring Gull (*Larus argentatus*) [A184] — West Donegal Coast SPA [004150], West Donegal Islands SPA [004230]**

A widespread coastal gull breeding on cliffs and islands and feeding at sea on fish and offal, and inland on refuse and carrion.

### **7.2.1.2. Impact Assessment**

#### **Habitats Directive (Annex II) Marine Mammals**

There is potential for temporary physical disturbance (visual presence and above-water noise) to pinniped species and otter arising from vessel activity associated with the proposed survey works. Disturbance, if it occurs, would be limited to temporary behavioural responses within the immediate vicinity of survey vessels operating in Ballyness Bay.

Seals in the wider north Donegal coastal area are habituated to a degree of anthropogenic activity, and the Project does not overlap with any designated haul-out, breeding, resting, moulting or pupping sites identified in the NPWS conservation objectives for relevant SACs. Although local observations indicate that grey seals may occasionally rest on intertidal sandbars within the inner part of Ballyness Bay, these opportunistic haul-out areas are submerged at high tide when MBES survey lines are undertaken. With survey vessels operating at slow, steady speeds and avoiding unnecessary close approaches, no disturbance to sensitive life-history stages is anticipated, and no adverse effect on grey seal conservation objectives will occur.

Otter may occur within Ballyness Bay on a transient basis; however, the Project area does not include identified resting or breeding sites for the species. Any disturbance, should it occur, would be localised and temporary, and would not restrict access to suitable habitat or prey resources within or outside relevant SACs.

Survey works will be undertaken intermittently and for short durations in any given location, avoiding prolonged presence in the same area. Vessel activity will be comparable in scale and nature to existing baseline activities within the bay, including fishing and recreational boating.

#### **Birds Directive – SCI Species**

There is potential for temporary above-water visual and noise disturbance to SCI bird species arising from drone activity during the proposed marine survey. Any disturbance, should it occur, would be localised, minimal and brief, and confined to potential disturbance arising from drone activity in the vicinity of breeding sites within coastal areas of Ballyness Bay and adjacent nearshore waters. The screened-in receptors comprise Arctic Tern, Common Gull, Lesser Black-backed Gull, Herring Gull, Cormorant, Shag and Corncrake associated with the screened-in SPAs: Falcarragh to Meenlaragh SPA [004149], Horn Head to Fanad Head SPA [004194], Greer's Isle SPA [004082], West Donegal Coast SPA [004150], West Donegal Islands SPA [004230], and Inishbofin, Inishdooley & Inishbeg SPA [004083], as identified in MARA's Stage 1 determination.

NPWS conservation objectives for these SPAs<sup>7</sup> confirm that key ecological features supporting SCI species (breeding colonies, roosting sites and foraging areas) are located on offshore islands and coastal cliff habitats<sup>7</sup>. Conservation objective mapping for Horn Head to Fanad Head SPA (2025a), West Donegal Coast SPA (NPWS, 2025b) and West Donegal Islands SPA (NPWS, 2025c) identifies breeding or roosting locations for Cormorant, Shag and Herring Gull along the wider coastline, but no such features occur within or immediately adjacent to the Project footprint in Ballyness Bay. Similarly, conservation objectives for Inishbofin, Inishdooney & Inishbeg SPA (NPWS, 2025d) indicate breeding colonies of Arctic Tern, Common Gull and Lesser Black-backed Gull on the offshore islands, with associated foraging areas distributed in surrounding coastal waters, rather than within sheltered embayment's such as Ballyness Bay.

The conservation objectives for Falcarragh to Meenlaragh SPA (NPWS, 2024b) relate to the maintenance of corncrake populations within suitable terrestrial grassland habitats located inland from the coastline. These habitats are spatially and ecologically distinct from the marine environment in which the proposed Project survey activities will take place. As all survey operations are fully marine-based, with no land access and disturbance to grassland habitats, there is no credible impact pathway linking Project activities to corncrake or its conservation objectives. Accordingly, corncrake is screened out from further assessment.

Published seabird distribution analyses for the north-west coast indicate that gulls, terns and diving species routinely forage over broad coastal areas, extending several kilometres offshore and into embayment's depending on prey availability and seasonal conditions (Woodward *et al.*, 2024). Telemetry and behavioural studies also indicate that several of the screened-in species, including Common Gull and Herring Gull, frequently associate with fishing and recreational vessels during foraging movements (Furness *et al.*, 2012; Furness *et al.*, 2013). Seabird sensitivity to vessel presence varies by species, but empirical data show that behavioural responses to small vessel traffic are typically localised and short-term, occurring primarily at close range (Furness *et al.*, 2013).

The Project will involve brief, intermittent drone activity in nearshore waters. Drone activity will not introduce permanent structures or barriers, and no works will occur onshore or in areas used by SCI species for nesting or roosting.

Disturbance, if it occurs, would therefore be limited to breeding/nesting sites, temporary, reversible and confined to the immediate vicinity of drone movements. As SCI species do not nest or roost within

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<sup>7</sup> All conservation objectives and site synopses for the abovementioned SACs and SPAs can be found on the NPWS protected sites website <https://www.npws.ie/protected-sites>

the Project footprint, there is no potential for direct disturbance to these features. Foraging habitat available to SCI species will remain accessible throughout the survey period, and no changes to prey availability or habitat structure are anticipated.

In summary, drone use during the Proposed Project is task-specific and temporally limited to the minimal survey requirements. It is also spatially constrained, as any potential disturbance would be theoretically limited to breeding sites; however, the majority of the survey activity will be marine-based, with coastal areas avoided where practicable.

Drone operations will be brief, intermittent, task-specific, undertaken during daylight hours, and restricted to marine areas, with no overflight of intertidal habitats, offshore islands or known bird congregation areas. These operational constraints ensure that drone use will not cause disturbance to SCI birds. Disturbance due to drone activity at breeding sites is spatially constrained, as surveys will avoid coastal areas. The Project footprint does not overlap breeding colonies, nesting habitats, core roosts or key foraging areas identified within the conservation objectives of the screened-in SPAs. Given the absence of sensitive receptor features within or adjacent to the Project area, the limited scale and duration of drone activity, and the high mobility of the SCI species concerned, there is no credible pathway for significant disturbance. Accordingly, no likely significant effects on SCI bird species or the conservation objectives of the relevant SPAs are predicted, and these receptors are screened out from further assessment.

### **7.2.1.3. Mitigation Measures**

#### **Habitats Directive (Annex II) Marine Mammals**

Mitigation measures will be implemented to avoid and minimise above-water visual and noise disturbance to pinniped and otter receptors during survey operations. Measures are based on best practice for vessel operation in proximity to Annex II marine mammals and otter and will be applied throughout the works.

- Vessel speed management

Survey vessels, including the ARCBoat, will transit at slow, steady speeds during survey operations to minimise the risk of disturbance and allow animals to detect and avoid vessels. Rapid acceleration, sudden changes in direction and unnecessary manoeuvring will be avoided.

- Predictable vessel movement

Vessels will follow consistent and predictable survey lines where possible. Stationary periods will be minimised to avoid prolonged close-range presence in any single area of the bay.

- Soft-approach to seal/otter presence

If seals or otters are observed within close proximity to the vessel path, a precautionary avoidance distance of >100 m will be maintained wherever practicable, and survey activity will be adjusted to allow animals to pass freely. Drones will not deliberately approach marine mammals or otters. Vessel speed near haul-outs should remain below 6 knots, and engines kept in neutral when holding station.

- Drone Buffer Distances

Drones will not operate within 150 m laterally of seal haul-out locations or within 100 m of shoreline habitats used by otter. Drone flight altitude will be maintained above 50 m except for safe take-off and landing.

- Drone Timing

Drone operations will be scheduled to avoid periods of low tide where haul-out use by seals may peak, unless required for safety or survey purposes, in which case the buffer distance will be strictly maintained.

- Daylight working

Survey operations will take place during daylight hours, reducing disturbance risk associated with artificial lighting and enabling effective visual awareness of animals in the vicinity.

- Trained personnel

All survey team members will be briefed on procedures for minimising disturbance to marine mammals and otter, including vessel handling, visual awareness and avoidance protocols.

- Minimisation of non-essential activity

Non-essential noise and human activity on deck will be kept to a minimum during survey operations.

Together, these measures will avoid close-range approaches, minimise vessel-related disturbance and ensure mobile Annex II qualifying interests can continue to move freely through Ballyness Bay without obstruction or displacement.

### **Birds Directive – SCI Species**

No specific mitigation measures are required for SCI bird species beyond those already embedded within standard drone operating procedures. The Stage 2 assessment has demonstrated that potential disturbance arising from temporary drone presence would be brief, reversible and limited in spatial extent. No nesting, roosting or colony features occur within the Project footprint, and the works will not restrict access to feeding areas or interrupt colony-related movements. Accordingly, no additional measures are necessary to ensure that the conservation objectives of the relevant SPAs are maintained.

#### **7.2.1.4. Conclusion**

The potential for visual and above-water noise disturbance to harbour seal, grey seal, otter and the screened-in SCI bird species has been assessed with regard to the conservation objectives of the relevant SACs and SPAs. No haul-out, breeding, resting or pupping sites for seals, nor holts or resting sites for otter, occur within the marine Project footprint, and NPWS conservation objective mapping confirms that nesting colonies or core roosting habitats for SCI bird species are located outside Ballyness Bay. Survey activity will be intermittent, short-term and comparable to existing vessel use of the bay. Vessel and drone operation measures designed to minimise interaction with marine mammals, birds, and otter will further reduce the potential for disturbance. In combination, these factors mean that any disturbance, should it occur, would be localised and temporary, and would not interfere with achievement of the conservation objectives of the screened-in European sites. Accordingly, no adverse effects on site integrity are predicted to arise from visual or above-water disturbance associated with the Project.

#### **7.2.2. Potential Impact Mechanism – Barrier to Connectivity**

##### **7.2.2.1. Potential Receptors**

##### **Habitats Directive (Annex II) Species**

The barrier-to-connectivity pathway identified at Stage 1 relates specifically to **Salmon (*Salmo salar*) [1106]** and **Freshwater pearl mussel (*Margaritifera margaritifera*) [1029]**, which are qualifying interests of Cloghernagore Bog & Glenveagh National Park SAC [002047] and Fawnboy Bog/Lough Nacung SAC.

NPWS conservation objectives for this SAC (NPWS, 2017) aim to maintain or restore:

- the distribution and successful upstream and downstream migration of Salmon along designated river systems,
- and the recruitment and population structure of Freshwater pearl mussel, which depends on juvenile salmonids as glochidial hosts (Moorkens, 2000; NPWS, 2017).

Watercourses supporting these qualifying interests ultimately discharge to the coastal environment in north-west Donegal, with migratory Salmon using estuarine and nearshore waters as a corridor between marine and freshwater habitats. The screening report identifies a theoretical risk that vessel noise and disturbance associated with the proposed surveys in Ballyness Bay could act as a temporary acoustic barrier to Salmon movement, with a consequent indirect risk to Freshwater pearl mussel recruitment.

### **7.2.2.2. Impact Assessment**

The proposed surveys will be undertaken within Ballyness Bay and adjacent coastal waters using small vessels and an ARCBoat. Activities will be intermittent, localised and of brief duration in any given area, with no in-river works, no physical structures, and no modification of river channels or estuarine bathymetry.

For a barrier-to-connectivity effect to occur, vessel noise or activity would need to be of a magnitude, duration and spatial extent sufficient to deter or delay Salmon approaching the river mouth during migration windows. Available scientific evidence indicates that migratory salmonids can exhibit startle or avoidance behaviour in response to intense, continuous or sudden noise sources, but are routinely exposed to and tolerant of small-vessel traffic in coastal and estuarine environments (*e.g.*, Moorkens, 2000; NPWS, 2017).

These measures ensure that vessel activity remains short-lived and predictable in the estuarine corridor used by migrating Salmon, thereby further reducing the already low risk of any functional barrier to connectivity.

In the case of the proposed Project, in line with the survey scope and standard good-practice measures:

- Survey vessels will be few in number, low-powered, and operate at low, steady speeds, avoiding rapid acceleration or abrupt manoeuvres that could increase noise or disturbance.
- Activity near river mouths will be minimised, with survey lines planned to complete work efficiently and avoid prolonged or repeated passes directly across main river channels.
- Operations in the vicinity of the river mouth will be temporary and non-continuous, with no long-term stationing of vessels across the channel.
- Existing baseline activity in Ballyness Bay, including fishing and recreational boating, represents a background level of disturbance to which local species are already adapted and which the proposed Project will not significantly alter.

Under these conditions, any theoretical behavioural response by migrating Salmon is expected to be limited to brief localised avoidance at close range, rather than sustained displacement or blockage of migratory routes. There is no mechanism by which such activity could prevent fish from accessing the river system over the duration of the survey window or measurably reduce the number of adults reaching spawning grounds within Cloghernagore Bog & Glenveagh National Park SAC, if taking routes through Ballyness Bay.

Under these conditions, any theoretical behavioural response by migrating salmon is expected to be limited to brief, localised avoidance at close range, rather than sustained displacement or obstruction of migratory routes. There is no plausible pathway by which survey activity could prevent access to the river system or measurably reduce the number of adults reaching spawning grounds within Cloghernagore Bog & Glenveagh National Park SAC. Accordingly, Atlantic salmon are screened out from further assessment.

Because freshwater pearl mussel recruitment depends on the presence of suitable salmonid hosts within designated river, any significant effect would require a sustained, population-level reduction in salmon access to the area. Given the absence of any physical or significant acoustic barrier at the river mouth, such an effect is not considered plausible. The conservation objectives for both salmon migration and freshwater pearl mussel recruitment are therefore not expected to be affected, and freshwater pearl mussel is screened out from further assessment.

#### **7.2.2.3. Mitigation Measures**

No specific mitigation measures are required for Atlantic salmon or freshwater pearl mussel beyond the good-practice vessel and survey measures already described. The Stage 2 assessment has demonstrated that any potential behavioural response by migrating salmon would be temporary, localised, and reversible, with no sustained obstruction of migratory routes or reduction in access to riverine habitats. Consequently, there is no plausible pathway by which the conservation objectives for salmon migration or freshwater pearl mussel recruitment could be compromised, and both species are screened out from further assessment.

#### **7.2.2.4. Conclusion**

Taking into account the limited spatial and temporal scale of survey activity, the absence of in-river works or physical obstructions, the wide temporal window available for Salmon migration, and the implementation of good-practice vessel management near river mouths, the proposed Project will not impede Salmon movement between marine and freshwater habitats or affect the availability of salmonid hosts for Freshwater pearl mussel within Cloghernagore Bog & Glenveagh National Park SAC [002047].

Accordingly, no adverse effects on the integrity of this SAC, or any other European site, are predicted to arise from barrier-to-connectivity or recruitment-related pathways.

### 7.3. Summary of Mitigation Measures

Mitigation measures have been incorporated into the Project to avoid and minimise the potential for ecological disturbance arising from visual and above-water noise associated with survey vessel operations within Ballyness Bay and adjacent coastal waters. These measures relate specifically to screened-in impact pathways and qualifying interests identified in the Stage 1 determination.

- **Marine mammals and otter**

To minimise the potential for temporary disturbance to harbour seal, grey seal and otter associated with Horn Head & Rinclevan SAC [000147], Slieve Tooley/Tormore Island/Loughros Beg Bay SAC [000190], Rutland Island & Sound SAC [002283], Gweedore Bay & Islands SAC [001141] and Cloghernagore Bog & Glenveagh National Park SAC [002047], survey operations will be undertaken in accordance with the following measures:

- **Vessel speed management:** survey vessels, including the ARCBoat, will operate at slow, steady speeds during survey activity to reduce disturbance risk, avoiding rapid acceleration or abrupt manoeuvres where practicable.
- **Predictable vessel movement:** vessels will follow consistent and predictable survey lines, minimising unnecessary manoeuvring or prolonged stationary periods in any one location.
- **Avoidance of close approaches:** where seals or otters are observed within close proximity to vessel activity, operations will, where practicable, maintain a precautionary distance to allow animals to move freely.
- **Daylight working:** survey operations will be conducted during daylight hours, reducing the potential for disturbance associated with artificial lighting and improving visual awareness of animals in the vicinity.
- **Trained personnel:** all crew members will be briefed on procedures to minimise disturbance to marine mammals and otter, including vessel handling protocols and visual awareness.
- **Drone Buffer Distances:** Drones will not operate within 150 m laterally of seal haul-out locations or within 100 m of shoreline habitats used by otter. Drone flight altitude will be maintained above 50 m except for safe take-off and landing.
- **Drone Timing:** Drone operations will be scheduled to avoid periods of low tide where haul-out use by seals may peak, unless required for safety or survey purposes, in which case the buffer distance will be strictly maintained.

These measures ensure that the potential for disturbance to the qualifying interests of the relevant SACs is minimised and that animals can continue to move freely through the survey area without obstruction.

#### **7.4. Plans or Projects that might act in-combination**

In accordance with MARA's Screening Determination (MUL230038), a review of other plans and projects within a 10 km radius and a five-year temporal window found no projects that would give rise to in-combination disturbance effects relevant to the qualifying interests of the screened-in European sites. MARA concluded at Stage 1 that the Project did not give rise to any significant risks of in-combination effects.

The Stage 2 assessment in this NIS has further considered potential in-combination effects relating specifically to visual and above-water disturbance and potential barrier-to-connectivity effects and the conservation features of the relevant Natura 2000 sites, in view of their conservation objectives. No mechanism has been identified by which the Project, in combination with other plans or projects, could alter the structure or function of any screened-in site, impede the achievement of conservation objectives, or otherwise interact to generate adverse effects on site integrity.

Accordingly, it is concluded that the Project will not result in adverse effects on the integrity of any European site when considered in combination with other plans or projects.

#### **7.5. Conclusion**

This Natura Impact Statement has considered, in view of best scientific knowledge and the conservation objectives of the relevant European sites, whether the Project would adversely affect the integrity of those sites, either alone or in combination with other plans or projects.

With the implementation of the mitigation measures set out in **Section 7.3**, the Project will not adversely affect the structure, function or conservation objectives of any screened-in European site. No reasonable scientific doubt remains regarding this conclusion.

Accordingly, it is determined that the Project will not result in adverse effects on the integrity of any European site, either alone or in combination with other plans or projects, in view of their conservation objectives.

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