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Supporting Information for Screening for Appropriate Assessment for Seaweed Harvesting Maritime Usage Licence (Mulroy Bay) with Addendum

ogt
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Client	**Rovensa NEXT (OGT)**
Document Ref.	JN1707MulroySISAA_GDG24052_Addendum001
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REVISION SUMMARY

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ADDENDUM

Gavin and Doherty Geosolutions (GDG) have been commissioned by Oilean Glas Teoranta (OGT) to submit a Maritime Usage Licence (MUL) for the hand harvesting of seaweed from the intertidal shoreline of three bays in Co. Donegal. Aquafact have produced a Screening Statement for Appropriate Assessment (Screening Statement for AA) in 2022. Please note that while in 2022 the report was produced to support a Foreshore Licence Application (FLA), this application is for a Maritime Usage Licence (MUL) to the Maritime Area Regulatory Authority (MARA). The addendum and associated amendments to report have been prepared by GDG.

GDG have made the following updates to the Screening Statement for Appropriate Assessment (Screening Statement for AA) produced by Aquafact in 2022.

Section	Amendment
1.1	Changed "1,000 wet tonnes of *Ascophyllum nodosum*" to "2,000 wet tonnes per annum of *Ascophyllum nodosum*"
1.1	Changed "The seaweed would be cut down, leaving about a hand's length behind" to "The seaweed would be cut down, leaving about a hand's length (15-20cm of seaweed holdfast to the substrate) behind"
1.1	Changed "approximately one tonne in weight" to "approximately 1 to 1.5 wet tonnes in weight"
1.1	Text added "Approximately each harvester will collect 3 to 4 callaí in a day. No callaí are left on the foreshore overnight. A fallow system will be employed where areas are harvested one year and not returned to until the seaweed has recovered. The way in which the harvesting will be conducted will be dependent on the site and the harvester. Where the coastline allows the seaweed will be harvested in a linear fashion along the coast. However, some areas that are proposed for harvesting have islands and small pockets of beach that only support a day's harvesting. In these circumstances, the harvesters will move to another section within the intertidal zone when all the seaweed is harvested."
2.1	Changed "1,000 wet tonnes of *Ascophyllum nodosum*" to "2,000 wet tonnes per annum of *Ascophyllum nodosum*"
2.3.1	Changed "development" to "activity"
2.3.3	Changed "development" to "activity"
2.3.4	Plans or Projects that Might Act In-Combination text added *In combination effects assessment as described in the accompanying AIMU report follows the approach described in the European Commission Notice Assessment of plans and*

	projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive (EC, 2021). The assessment is informed by defining • *Cumulative Effects Spatial Scope (CESS)* *Cumulative Effects Temporal Scope (CETS)*
2.3.4	Changed “development” to “activity”

Proposed Hand-Harvesting of *Ascophyllum nodosum* in Mulroy Bay Special Area of Conservation, Co. Donegal.

Screening Statement for Appropriate Assessment

Produced by

AQUAFACT International Services Ltd

On behalf of

Oilean Glas Teo

June 2022

AQUAFACT International Services Ltd.,

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Document Control/ Approval Sheet

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1. Introduction

This Screening Statement for Appropriate Assessment (Screening Statement for AA) has been prepared by AQUAFACT International Services Limited (AQUAFACT) to provide competent authorities the relevant information for a Foreshore Licence application made by Oilean Glas Teo (OGT) to the Department of Housing, Local Government and Heritage (DHLGH), for the hand-harvesting of the seaweed *Ascophyllum nodosum* from the intertidal shoreline in Mulroy Bay Special Area of Conservation, Co. Donegal (the 'Proposed Project'). This report will focus on the impacts that the proposed project will have on the qualifying interests of the Natura 2000 sites in and around the harvesting area.

1.1. Overview of the Proposed Project

OGT is planning to harvest up to 2,000 wet tonnes per annum of *Ascophyllum nodosum* off Mulroy Bay for processing in its plant at Kilcar, Co. Donegal which produces fertilisers and feeds for multiple animals. This will be collected from the harvestable area within Mulroy Bay SAC. The harvesting of seaweed continues to play an important cultural role in Co. Donegal, and it has expanded into commercial exploitation of the abundant seaweed resources of the area.

Traditionally, the seaweed is harvested by hand using traditional sickles or knives, forks, ropes, and nets at low tide. The seaweed would be cut down, leaving about a hand's length (15-20cm of seaweed holdfast to the substrate) behind to ensure re-growth, then bound with nets and ropes and left at low shore. High tide would float the bundle which could be approximately 1 to 1.5 wet tonnes in weight, thus promoting easier transportation to a suitable pier for collection by lorry, with a crane. They are then lifted directly from the seashore by the crane onto the lorry. Approximately each harvester will collect 3 to 4 callaí in a day. No callaí are left on the foreshore overnight.

A fallow system will be employed where areas are harvested one year and not returned to until the seaweed has recovered. The way in which the harvesting will be conducted will be dependent on the site and the harvester. Where the coastline allows the seaweed will be harvested in a linear fashion along the coast. However, some areas that are proposed for harvesting have islands and small pockets of beach that only support a day's harvesting. In these circumstances, the harvesters will move to another section within the intertidal zone when all the seaweed is harvested.

1.2. Requirement for Appropriate Assessment

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (commonly known as the Habitats Directive) is the European Community legislation based on 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 Article 6(3) and 6(4) of the Habitats Directive.

The AA provision of the Habitats Directive is also transposed in Ireland by the Planning and Development Act 2000 (as amended) in respect of land use plans and proposed developments requiring development consent.

A network of sites of conservation importance hosting habitats and species as needing to be either maintained at or, where appropriate, restored to favourable conservation status have been identified by each Member State. Sites, species, and habitats protected under Directive 92/43/EEC (Habitats Directive) and Directive 2009/147/EC (Birds Directive) are referred to as Natura 2000 sites. Natura 2000 sites are referred to as European sites in the Planning and Development Act 2000 (as amended). These terms are synonymous. European sites in Ireland that form part of the Natura 2000 network of protected sites comprise Special Area 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 2009/147/EC). The specific named habitat and/or (non-bird) species for which a SAC or SPA is selected are called 'Qualifying Interests' (QI) of the site while specific named bird species for which a SPA is

selected are called 'Special Conservation Interest' (SCIs) of the site (OPR, 2021[1]). In this report, QIs and SCIs are collectively referred to as 'conservation features'. European sites are formally designated under a statutory instrument. Candidate SAC sites (cSAC) or candidate SPA sites (cSPA) have the same level of protection as fully designated sites under Irish Law[2].

1.2.1. Stages of the Appropriate Assessment Process

Articles 6(3) and Article 6(4) of the Habitats Directive outline the decision-making tests for considering plans and projects that may have a significant effect on a Natura 2000 site.

The Department of the Environment Heritage and Local Government guidelines (DEHLG, 2009, rev 2010) promotes a four-stage process to complete the AA and outlines the issues and tests at each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

The four stages are summarised diagrammatically in **Figure 1-1**, and an outline of the steps and procedures involved in completing each stage follows below. Stage 1 and Stage 2 deal with the main requirements for assessment under Article 6(3) of the Habitats Directive. Stage 3 may be part of the Article 6(3) Assessment or may be a necessary precursor to Stage 4. Stage 4 is the main derogation step of Article 6(4).

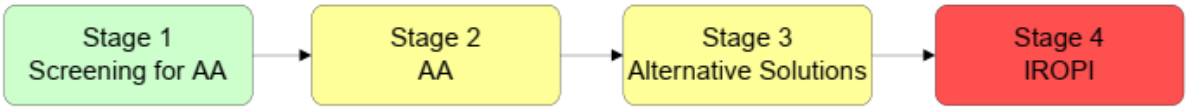

Figure 1-1: Four stages of the Appropriate Assessment Process.

In complying with the obligations under Article 6(3) this report has been structured as a stage by stage approach.

[1] OPR 2021. Office of the Public Regulator Practice Note PN01. Appropriate Assessment Screening for Development Management https://www.opr.ie/wp-content/uploads/2021/03/9729-Office-of-the-PlanningRegulator-Appropriate-Assessment-Screening-booklet-15.pdf

[2] Candidate sites are those that have been submitted to the European Commission, but not yet formally adopted under Ministerial Statutory Instrument (S.I.) (OPR, 2021). 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.

1.2.2. Stage 1: Screening for Appropriate Assessment

Stage I AA Screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3):

i. whether a plan or project is directly connected to or necessary for the management of European site, and
ii. whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a European site in view of its conservation objectives.

If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA). Screening should be undertaken without the inclusion of mitigation, unless potential impacts clearly can be avoided through the modification or redesign of the plan or project, in which case the screening process is repeated on the altered plan. The greatest level of evidence and justification will be needed in circumstances when the process ends at screening stage on grounds of no impact.

1.2.3. Stage 2: Appropriate Assessment

This stage 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, taking account of in-combination effects. This should provide information to enable the competent authority to carry out the appropriate assessment. If the assessment is negative, *i.e.* 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.

The AA is carried out by the Competent Authority and is supported by the NIS with input from the National Parks and Wildlife Service (NPWS) who are a statutory consultee.

1.2.4. Stage 3: Alternative Solutions

This stage examines any alternative solutions or options that could enable the plan or project to proceed without adverse effects on the integrity of a European site. The process must return to Stage 2, as any alternative proposal must be subject to a Stage 2 AA before it can be subject to the Article 6(4) test. If it can be demonstrated that all reasonable alternatives have been considered and assessed, the AA progresses to Stage 4.

1.2.5. Stage 4: Imperative Reasons of Overriding Public Interest/Derogation

Stage 4 is the main derogation process of Article 6(4) which examines whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project that will have adverse effects on the integrity of a European site. The extra protection measures for Annex I priority habitats come into effect when making the IROPI case. Compensatory measures must be proposed and assessed. The European Commission must be informed of the compensatory measures. Compensatory measures must be practical, implementable, likely to succeed, proportionate and enforceable.

1.3. Purpose of this Report

This *Screening Statement for AA* has been prepared to provide information to enable the competent authority to carry out a *Stage 1: Screening for AA* of the Proposed Project as required under Article 6(3) obligations under the Habitats Directive. This report considers the potential effects of the Proposed Project to European sites.

1.4. 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),
- EC (2021) Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Commission notice (2021),
- OPR (2021) Appropriate Assessment Screening for Development Management. Practice Note PN01. Office of the Planning Regulator. March 2021,
- DEHLG (2009) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities (Revised 2010), and
- DAHG - NPWS (2012) Marine Natura Impact Statements in Ireland Special Areas of Conservation, A Working Document.

This assessment includes a review of available records of protected species and habitats including the following sources:

- Baseline desk studies and field surveys carried out for the Proposed Project area,

- Conservation Status Assessment Reports, Backing Documents and Maps prepared to inform national reporting required under Article 17[3] of the Habitats Directive and Article 12[4] of the Bird 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 and
- 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 National Biodiversity Data Centre - http://maps.biodiversityireland.ie and the NPWS - http://www.npws.ie/mapsanddata/.

1.5. Statement of Authority

This report has been prepared by [redacted] *nodosum* in Trawbreaga Bay, Co. Donegal – Screening Statement for Appropriate Assessment. He is expert in ecological matters and the full spectrum of environmental assessment techniques, methodologies and statutes. Professionally, he is a member of relevant institutes requiring the highest standards of professional competence and integrity. He is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

[redacted] has 40 years of experience in the field of marine science and has published *c.* 75 scientific papers and numerous reports specialising in the biology and ecology of sea-floor communities. [redacted] is an internationally recognised polychaete taxonomist and has led numerous international workshops in polychaete taxonomy including workshops as part of the UK BEQUALM/NMBAQC. He has 33 publications on marine invertebrate taxa including descriptions of new species, revisions of families and additions to the European and Irish fauna.

As Managing Director of AQUAFACT [redacted] has been responsible for all aspects of management including the design, execution and reporting of numerous desk studies, surveys, assessments and environmental outputs including NIS, AA screening and EIARs.

[redacted] Degree (MSc) in Conservation Behaviour from ATU (previous GMIT), where she focused on predicting

[3] Most recent Article 17 report is available at https://www.npws.ie/publications/article-17-reports/article-17-reports-2019
[4] Most recent Article 12 report is available at https://www.npws.ie/news/birds-directive-article-12-reporting

the spatial distribution of delphinid species in a critical conservation region in Portugal. She is specialised in spatial modelling using RStudio and Geographic Information System software with focus on the marine environment. She is also a licensed Marine Mammal Observer (MMO) certified by the Joint Nature Conservation Committee (JNCC) and has experience in both land and boat-based surveys around the Irish coast. She is currently a marine ecologist working on AA, NIS and Risk Assessments for Annex IV species on a variety of projects in the marine sector.

1.6. Structure of this Report

This *Screening Statement for AA* has been prepared to provide information to enable the competent authority to carry out a *Stage 1: Screening for AA*, and if deemed necessary, a *Stage 2: AA* of the Proposed Project as required under Article 6(3) obligations under the Habitats Directive. Specifically, this report focuses on the potential effects of the Proposed Project on the conservation features of European sites. The content of this report is as follows:

- **Section 1:** Stage 1 Screening for Appropriate Assessment
    - **Section 2.1:** Description of the Proposed Project
    - **Section 2.2:** Description of the Proposed Project area
    - **Section 2.3:** Screening Exercise
    - **Section 2.4:** Screening Outcome

2. Stage 1 Screening for Appropriate Assessment

2.1. Description of the Proposed Project

OGT is planning to harvest up to 2,000 wet tonnes per annum of *Ascophyllum nodosum* off Mulroy Bay for processing in its plant at Kilcar, Co. Donegal, which produces fertilisers and feeds for multiple animals. This will be collected from the harvestable area within Mulroy Bay SAC (**Figure 2-1**). Guiry & Morrison (2013) note that between 8,000 – 28,000 wet tonnes of *A. nodosum* were harvested annually in Ireland between 1964 and 2013. Estimates for the national biomass of this algae vary from 159,000 (± 45,000) by Cullinane (1984) down to 75,000 wet tonnes by Hession *et al.* (1998). It is also stated that the large difference in estimates relates to different assessment methods employed however "there are sufficient unharvested areas to satisfy any requirement for conservation".

Ascophyllum nodosum (also known as Knotted Wrack or Asco) is a perennial brown intertidal seaweed, which occurs on mid to low intertidal rocky shores at a variety of exposures, except those most exposed to wave action. It is considered the dominant seaweed species on most of the Irish intertidal coastline, in which an *Ascophyllum* bed is dominated by *Ascophyllum* clumps, or the zone on the shore that is recognised by the biomass of *Ascophyllum* (Kelly *et al.,* 2001). Typically, 8-15cm of growth is produced annually and the sections of shoots between successive vesicles or internodes generally record annual growth increments (Kelly *et al.,* 2001). *Ascophyllum* regenerates both sexually and asexually. To regenerate sexually, gametes are released in spring into the water column from the conceptacles on the surface of club shaped lateral swellings called receptacles. However, the constant production of shoots from the base of the plant (by asexual regeneration) is clearly more important in maintaining the population of *Ascophyllum* than the re-growth from fertilised eggs (Stengel & Dring, 1997). Guiry (1997) has reported that if lengths of 10-20cm of *A. nodosum* are left uncut the plants can recover and re-harvests possible in 3-6 years.

One of the biggest and longest running companies was Arramara Teó which opened a factory in Meenmore, near Dungloe in Co. Donegal in 1947. This factory processed *Ascophyllum nodosum*, extracting alginates and manufacturing growth stimulants and feed supplements for use in agriculture and horticulture. The seaweed will be harvested by hand in the tradition manner. This involves using local cutters each working within a specific area. The seaweed will be cut at low tide using a knife, leaving approximately 15-20cm attached to the substrate to ensure re-growth of the plant. The seaweed will then be gathered using a fork into bundles (local term cailleach/caillaí) of approximately 1t, that are bound by nets and ropes and left on the intertidal shoreline (**Figure 2-2**). These caillaí float

at high water and are towed usually by a small boat to a suitable pier for collection by a lorry with a crane. They are lifted directly from the seashore by the crane onto the lorry and driven away.

A harvesting plan has been developed to manage the resource in a sustainable way. The bay has been divided into 4 main areas and each of these larger areas is further divided into smaller subsections. Each of these small areas has been allocated a tonnage of *Ascophyllum* represents just under *ca* 12% of the total biomass of that area. The cutters will follow this harvesting plan by only collecting the allocated annual tonnages from each harvested area.

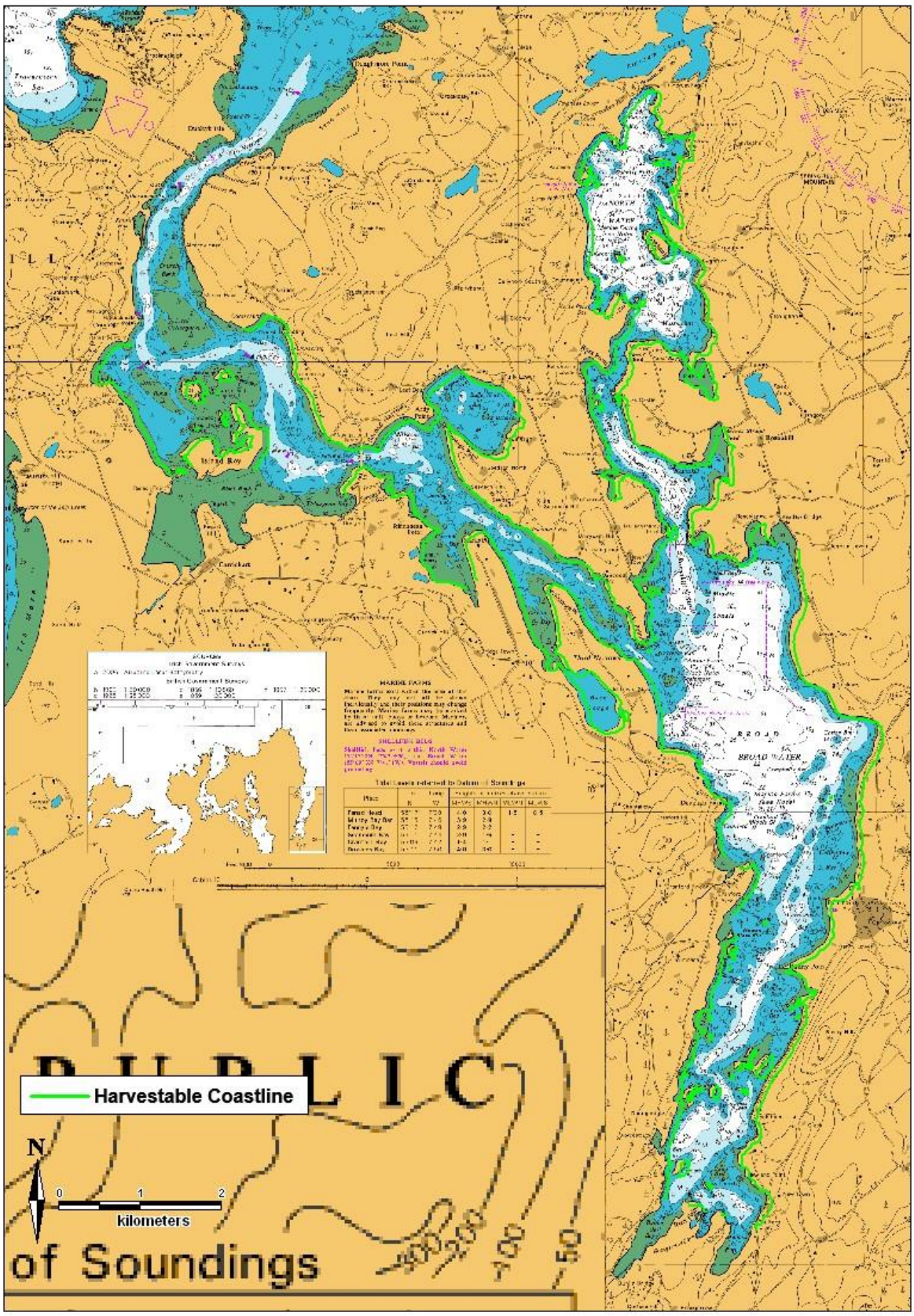

Figure 2-1: Location of the Ascophyllum nodosum harvestable area located within Mulroy Bay, Co. Donegal.

Figure 2-2: *Ascophyllum nodosum* located in the rocky intertidal zone (above) and bundled in nets (below).

2.2. Description of the Proposed Project area

The Proposed Project area is within Mulroy Bay SAC, which is an extremely sheltered and narrow inlet located in the north coast of Co. Donegal. The European sites designated as SACs and SPAs present in the Proposed Project area are described in **Section 2.2.1** and **Section 2.2.2**, respectively.

2.2.1. Special Areas of Conservation (SACs)

There are two Special Areas of Conservation sites within the Proposed Project area, which includes the whole harvesting area and two other SACs in close proximity with the harvesting area:

- Mulroy Bay SAC (Site code: 002159) (within the Proposed Project area)
- Sheephaven SAC (Site code: 001190) (within the Proposed Project area)
- Kindrum Lough SAC (Site code: 001151) (approximately 100m of the Proposed Project area)
- Lough Nagreany Dunes SAC (Site code: 000164) (approximately 1km north of the Proposed Project area)

Mulroy Bay SAC (002159)

Mulroy Bay SAC is a glacial fiard situated in the north coast of Donegal and designated the most convoluted of the marine inlets in the northwest of Ireland. This site encompasses three extremely narrows where the current is extremely strong. It also includes the Moross Peninsula, which is a large glacial drumlin separating the North Water from the Broad Water, and Bedrock which is manly comprised by metamorphic quartzite, limestone, schist and gneiss, with intrusive granite at the mouth (NPWS, 2019b). This site is designated for the following Qis (*= priority):

- Tidal Mudflats and Sandflats [1140]
- Large Shallow Inlets and Bays [1160]
- Reefs [1170]
- Otter (*Lutra lutra*) [1355]

Mulroy Bay displays excellent examples of three habitats listed on Annex I of the Habitats Directive - reefs, large shallow inlets and bays and mudflats and sandflats not covered by seawater at low tide. The site contains a variety of different sediment types which includes coarse sand, the free-living red calcareous algae called maerl (also known as ‘coral’) and a range of exposed and sheltered reefs with strong to weak currents, the latter being extremely rare to occur in Ireland. Rare species found in this site include Couches Goby (*Gobius couchi*), the file shell (*Limaria hians*), the anthozoan (*Paraerythropodium coralloides*) and the hydorid (*Halecium muricatum*). There are also species with

a very restricted distribution (or which are close to the limits of their distribution) which include the red alga (*Dudresnay verticillate*) and the bubble shell (*Haminoea navicular*). A large population of the scallop *Pectin maximus* occur in Mulroy Bay and is now commercially managed (NPWS, 2019b).

Extensive reef of flat and sloping bedrock occurs from the south of Melmore Head to Gortnalughoge Bay. The exposure regime of the reef ranges from moderately exposed within the northern reaches of the site to sheltered reef inside the First Narrows, which is a rare type of reef in Irish waters. The reef is predominated by brown algal species including *Fucus* spp. and *Ascophyllum nodosum* which is largely found in most shores of this bay. The bivalve *Mytilus edulis* also occurs here (NPWS, 2019b).

This site also includes a large intertidal area around Island Roy and Carrickart, where the sediment is largely sand to coarse sediment with polychaete (*Pygospio elegans*) occurring in moderate to low abundances. Nematodes, the bivalve (*Cerastoderma edule*) and the polychaete (*Scoloplos armiger*) occur in low abundances. The oligochaete (*Heterochaeta costata*) is abundant at Carrickart, and colonial sea squirt bryozoan *Bowerbankia* sp. is recorded on the shore at Island Roy.

The bay supports significant numbers of wintering birds, with Mute Swan present in nationally important numbers and several species recorded in regionally important numbers (Brent Goose, Shelduck, Wigeon, Teal, Red-breasted Merganser, Oystercatcher and Dunlin). The otter, an Annex II species of the Habitats Directive, also frequents this site (NPWS, 2019b).

This site displays a range of different habitats which is reflected in the high number of communities found in the bay and the high species diversity, contributing for this sites' conservation importance. Aquaculture, scallop dredging and seaweed harvesting occur within the site and may pose a threat to the ecological value of the area.

Sheephaven SAC (001190)

The Sheephaven Bay is a north-facing bay, situated north of Creeslough on the northwest coast of Co. Donegal. This site receives the flows of a number of rivers, the Lackagh river, the Duntally river, the Faymore river and the Carrownamaddy river. The bedrock geology consists of schist (two types), quartzite, metadolerite, and a range of diverse habitats including mudflats, saltmarshes, sand dunes, lakes, rivers, heath, scrub and woodland occurs in this site (NPWS, 2020). This site is designated for the following QIs (*= priority):

- Tidal Mudflats and Sandflats [1140]
- Annual Vegetation of Drift Lines [1210]
- Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]

- *Salicornia* Mud [1310]
- Atlantic Salt Meadows [1330]
- Mediterranean Salt Meadows [1410]
- Embryonic Shifting Dunes [2110]
- Marram Dunes (White Dunes) [2120]
- Fixed Dunes (Grey Dunes)*
- Humid Dune Slacks [2190]
- Machairs* [21A0]
- Old Oak Woodlands [91A0]
- Petalwort (*Petalophyllum ralfsii*) [1395]
- Marsh Fritillary (*Euphydryas aurinia*) [1065]

The site is particularly notable in a national context due to its extensively vegetated intertidal zone. The sandflats support one of the largest areas of annual vegetation dominated by Glasswort (*Salicornia europaea*) and this is the largest extent of habitat known that is not affected by Common Cordgrass (*Spartina townsendii*), an invasive species that threatens this habitat. There are also excellent examples of unmodified zonation between pioneer vegetation through to upper marsh saltmarsh communities.

This site also supports the Marsh Fritillary (*Euphydryas aurinia*), a Habitats Directive Annex II and red-listed butterfly, known from suitable habitat at Ards and Carrigart and it may occur elsewhere. The habitats at Ards also support a notable butterfly assemblage including one the most northern sites for the Cryptic Wood White (*Leptidea juvernica*) in Ireland. In total 21 species are known, including the red listed and near-threatened species Small Blue (*Cupido minimus*), Dark Green Fritillary (*Argynnis aglaja*), Grayling (*Hipparchia semele*) and Small Heath (*Coenonympha pamphilus*). There is also some species of molluscs occurring in this site such as, *Pupilla muscorum*, *Helicella itala*, *Leiostyla anglica*, *Vertigo antivertigo*, *Vertigo pygmaea* and *Vertigo substriata*, listed in the IUCN Red List. The rare hermit crab (*Diogenes pugilator*) can also be found at Marble Hill Strand (NPWS, 2020).

The intertidal mud and sandflats support moderate numbers of waterfowl in autumn and winter. These include Shelduck, Wigeon, Teal, Mallard, Oystercatcher, Ringed Plover, Dunlin and Curlew. The site is sometimes used by the Barnacle Goose (*Branta leucopsis*) which is centred at the New Lake at Dunfanaghy. Other Annex I of the Birds Directive species associated with the site are Chough, Peregrine (occasional visitor) and Common Tern (NPWS, 2020).

The site is of particular conservation significance for the presence of good examples of several habitats listed on Annex I of the Habitats Directive and for the important bird populations it supports.

Kindrum Lough SAC (001151)

The Kindrum Lough SAC is situated 22 km north of Millford on the Fanad Peninsula, Co. Donegal. It encompasses the Kindrum Lough and the Fallaneas Lough, which contain rounded hills with outcropping schists. Kindrum Lough has a stony bottom and is in sharp contrast to the nearby machair lakes, which lie on sand. This lough is an oligotrophic to mesotrophic lake, listed in Annex I of the Habitats Directive (NPWS, 2015). This site is designated for the following QIs (*= priority):

- Oligotrophic to Mesotrophic Standing Waters [3130]
- Slender Naiad (*Najas flexilis*) [1833]

In the bays of Kindrum Lough, a partial fringe of Common Reed (*Phragmites australis*) occurs, with a more extensive area of reedswamp at the southwestern end, with species such as Great Fen-sedge (*Cladium mariscus*), Common Sedge (*Carex nigra*) and Slender Sedge (*Carex lasiocarpa*) also found. A wet area of fen, rich in sedge species and aquatic herbs occurs between this reedbed and Fallaneas Lough. Fallaneas Lough contains a diversity of marginal vegetation types, including fen, rushy fields and Hazel (*Corylus avellana*) scrub. Its outflow flows into Kindrum Lough.

This site also includes two rare, Red Data Book plant species, Slender Naiad (*Najas flexilis*), listed on Annex II of the Habitats Directive as well as the Flora (Protection) Order 2015, and the stonewort *Nitella spanioclema*, an extremely rare species and endemic to Ireland, only recorded in Kindrum Lough and another nearby lough (NPWS, 2015).

The lake supports a population of Arctic Char (*Salvelinus alpinus*), a Red Data Book fish species. The Whooper Swan, a species listed on Annex I of Birds Directive, and the Tufted Duck are also known to occur in this site. Kindrum Lough is used as a reservoir however the drawdown appears to be quite small. The surrounding semi-improved fields are used for grazing of sheep and cattle. Further improvement of these fields could lead to a reduction in the quality of the water on the site and threaten the survival of the rare plant and fish populations (NPWS, 2015).

This SAC is of considerable conservation significance due to the presence of an oligotrophic lake, a habitat that is listed on Annex I of the Habitats Directive; for the Slender Naiad (*Najas flexilis*), listed on Annex II of the Habitats Directive, and for the presence of rare fish species (NPWS, 2015).

Lough Nagreany Dunes SAC (000164)

The Lough Nagreany Dunes SAC is located on the north-western side of the Fanad Peninsula, approximately 30km north of Milford, near the mouth of Mulroy Bay in Co. Donegal (NPWS, 2019a). This site is designated for the following QIs (*= priority):

- Embryonic Shifting Dunes [2110]
- Marram Dunes (White Dunes) [2120]
- Fixed Dunes (Grey Dunes)* [2130]
- Decalcified Empetrum Dunes* [2140]
- Decalcified Dune Heath* [2150]
- Dunes with Creeping Willow [2170]
- Humid Dune Slacks [2190]
- Machairs* [21A0]
- Oligotrophic to Mesotrophic Standing Waters [3130]
- Slender Naiad (*Najas flexilis*) [1833]

The dune system consists of granite and shows a fine gradation from fixed dunes, to machair, to dune heath, and includes multiple habitats listed on Annex I of the Habitats Directive. The fixed dunes include typical species such as, Lady's Bedstraw (*Galium verum*), Harebell (*Campanula rotundifolia*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Kidney Vetch (*Anthyllis vulneraria*) and Red Fescue (*Festuca rubra*). The vegetation in the mature area of fixed dunes includes the Burnet Rose (*Rosa pimpinellifolia*), Creeping Willow (*Salix repens*) and Bracken (*Pteridium aquilinum*). The dune heath has Heather (*Calluna vulgaris*), Juniper (*Juniperus communis*) and Crowberry (*Empetrum nigrum*). The machair plains are species rich and frequent species also include Lady's Bedstraw, Common Bird's-foot-trefoil as well as, White Clover (*Trifolium repens*) in dry areas, along with Creeping Bent (*Agrostis stolonifera*), Common Sedge (*Carex nigra*) and Marsh Pennywort (*Hydrocotyle vulgaris*) in wetter areas (NPWS, 2019a).

Other dune types which occur include embryonic dunes which are dominated by Sand Couch (*Elymus farctus*), the companion species Lyme-grass (*Leymus arenarius*) and Sea Rocket (*Cakile maritima*), and marram dunes. Ragwort (*Senecio jacobea*), which is indicative of grazing pressure, is widespread throughout the site (NPWS, 2019a).

This site includes several species-rich loughs, generally containing a fringe of Common Reed (*Phragmites australis*) and Great Fen-sedge (*Cladium mariscus*), with Water-plantain (*Alisma*

plantago-aquatica), Water Mint (*Mentha aquatica*), Purple-loosestrife (*Lythrum salicaria*), Yellow Iris (*Iris pseudacorus*) and Water Horsetail (*Equisetum fluviatile*).

The rare Slender Naiad (*Najas flexilis*), listed on Annex II of the Habitats Directive and in the Flora (Protection) Order, 2015, is also found in Lough Nagreany, an oligotrophic to mesotrophic lake listed on Annex I of the Habitats Directive. Gortnatraw Lough, also included in this site, is defined by its unusual chemistry and specific species-richness due to being a catchment of acid rocks overlain by sand. The Lough Nagreany site provides good feeding habitat for Choughs (*Pyrrhocorax pyrrhocorax*) and Lapwing (*Vanellus vanellus*) which breed within the site (NPWS, 2019a).

This site is of particular interest for the gradation from fixed dune to decalcified dune heath and machair. The occurrence of a small area of decalcified fixed dunes with *Empetrum nigrum* is of special importance due to its rarity in Ireland. Lough Nagreany, while a shallow lake, supports a population of the Annex II species *Najas flexilis*, and Chough, an Annex I species on the Birds Directive, also feeds within the site.

The location of the SACs is shown in **Figure 2-3**.

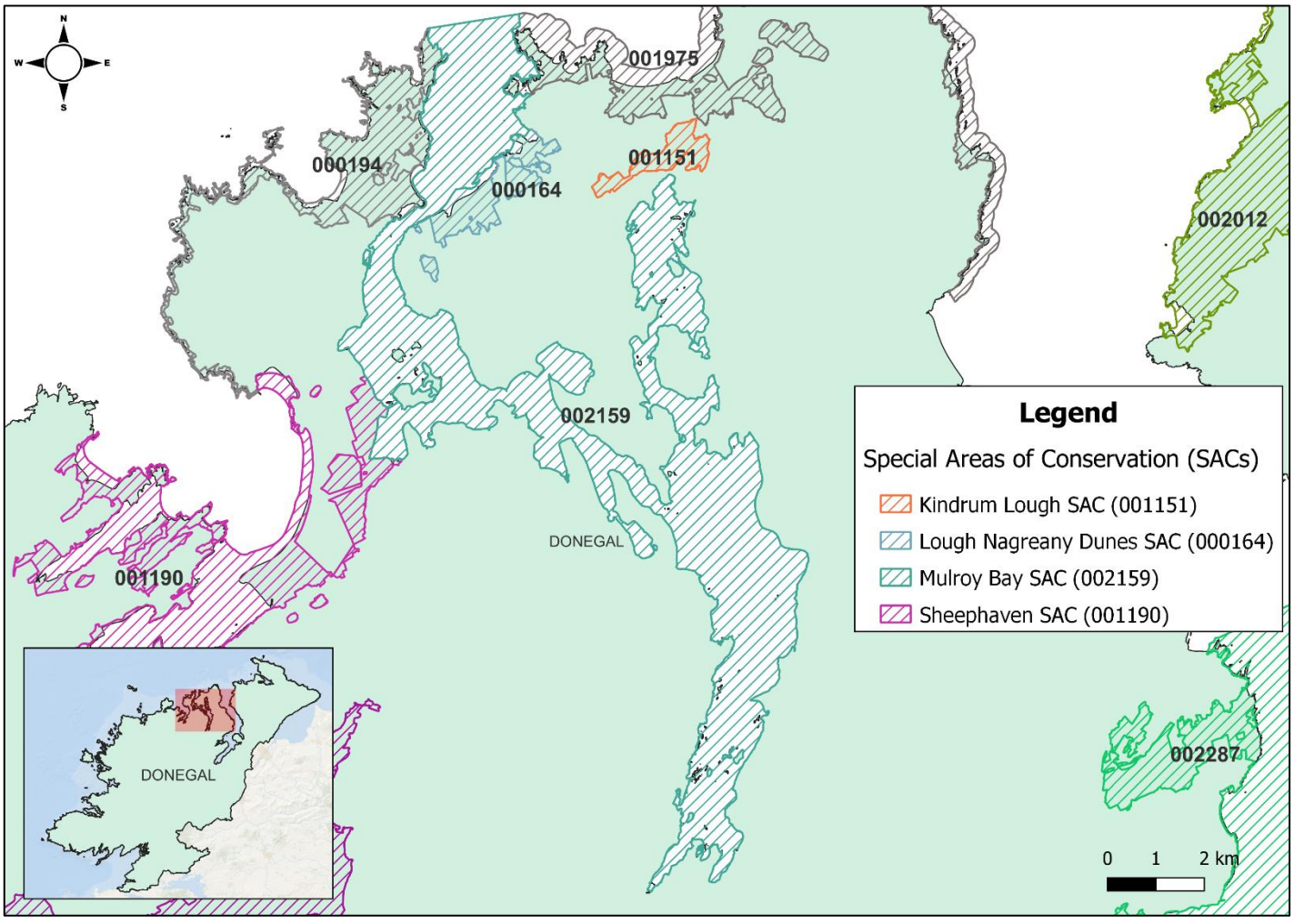

Figure 2-3: SACs located in the Proposed Project area, Co. Donegal.

2.2.2. Special Protection Areas (SPAs)

There is one Special Protection Area site located within the harvesting area, and another in close proximity to the Proposed Project area:

- Greers Isle SPA (Site code: 004082) (within the Proposed Project area)
- Horn Head to Fanad Head SPA (Site code: 004194) (approximately 1.5km north of the Proposed Project area)

Greers Isle SPA (004082)

The Greers Isle SPA is relatively small island in the enclosed and highly sheltered marine waters of Mulroy Bay, Co. Donegal. This island is approximately 500 m from the mainland and the underlying bedrock is most likely part of a metadolerite intrusion. The surrounding waters to a distance of 200m are also included in this site (NPWS, 2010). This site is designated for the following SCIs:

- Black-headed Gull (*Chroicocephalus ridibundus*) [A179]
- Common Gull (*Larus canus*) [A182]
- Sandwich Tern (*Sterna sandvicensis*) [A191]

This site has a breeding site for terns and gulls, with high numbers for Sandwich Tern and Artic Tern populations. These bird species eventually deserted the site, until 2002 were they reappeared, and a mixed Common Tern/Arctic Tern colony has found to occur in this site (NPWS, 2010).

The site also supports nationally important colonies of Common Gull and Black-headed Gull. Several pairs each of Tufted Duck (*Aythya fuligula*) and Red-breasted Merganser (*Mergus serrator*) breed at the site (NPWS, 2010).

Greers Isle SPA is of ornithological importance for its nationally important breeding tern and gull populations. All three species of tern recorded on the island are listed on Annex I of the Birds Directive.

Horn Head to Fanad Head SPA (004194)

The Horn Head to Fanad Head SPA comprises a number of separate sections of the north Co. Donegal coastline stretching some 70 km eastwards from Dooros Point, southwest of Horn Head to just south of Saldanha Head, south of Fanad Head. The site includes the high coast areas and sea cliffs, land adjacent to the cliff edge and the sand dunes and lake at Dunfanaghy/Rinclevan. The high-water mark forms the seaward boundary, except at Horn Head where the adjacent sea area to a distance of 500 m from the cliff base is included (NPWS, 2014). This site is designated for the following SCIs:

- Fulmar (*Fulmarus glacialis*) [A009]
- Cormorant (*Phalacrocorax carbo*) [A017]
- Shag (*Phalacrocorax aristotelis*) [A018]
- Barnacle Goose (*Branta leucopsis*) [A045]
- Peregrine (*Falco peregrinus*) [A103]
- Kittiwake (*Rissa tridactyla*) [A188]
- Guillemot (*Uria aalge*) [A199]
- Razorbill (*Alca torda*) [A200]
- Chough (*Pyrrhocorax pyrrhocorax*) [A346]
- Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]

Sea cliffs are present along the site and its geology consists of both metamorphic and igneous intrusive rocks. The metamorphic rocks are quartzites and schists, while the igneous rocks are silica-rich granites and more the basic dolerites and granodiorites. A small low-lying peninsula of metamorphic limestone occurs at Cloonmass Point and Isle just north of the Ards peninsula. Sea cliffs on the site are particularly important for bird species for breeding and roosting sites, whilst the land adjacent to the cliff tops provides feeding habitat (NPWS, 2014).

The site holds an internationally important population of breeding Chough (*Pyrrhocorax pyrrhocorax*), a Red Data Book species, and a large population of Peregrine (*Falco peregrinus*). The cliffs around Horn Head are also used by a large assemblage and wide variety of nesting seabirds such as, Fulmar, Cormorant, Shag, Kittiwake, Guillemot and Razorbill. Other species that occur include Black Guillemot, Puffin, Herring Gull, Great Black-backed Gull and Common Gull (NPWS, 2014).

New Lake/Rinclevan and the dunes to the west (west-south-west of Dunfanaghy) support nationally important Greenland White-fronted Goose and Barnacle Goose. The Greenland White-fronted Goose flock is considered to be the bird species that formerly frequented blanket bog sites in vicinity of the Calabber River valley. The Barnacle Goose flock is part of an internationally important population that also uses the islands of Inishbofin and Inishdooey. The geese feed on the dune grassland and on intensive grassland. Whooper Swan also occurs regularly, along with a range of other waterfowl species, notably Pochard, which are well suited to the shallow lake waters. Other species present include Teal, Mallard, Tufted Duc, Goldeneye, Mute Swan and Coot.

In summer, the site supports a good diversity of breeding waders including the species of Lapwing, Snipe, Redshank, Oystercatcher, Dunlin and Common Sandpiper.

This site is of high importance for Chough and Peregrine, both listed in Annex I of the Birds Directive as well as, other breeding seabird species. Part of the Horn Head to Fanad Head SPA is also a Wildfowl Sanctuary.

The location of the SPAs is shown in **Figure 2-4**.

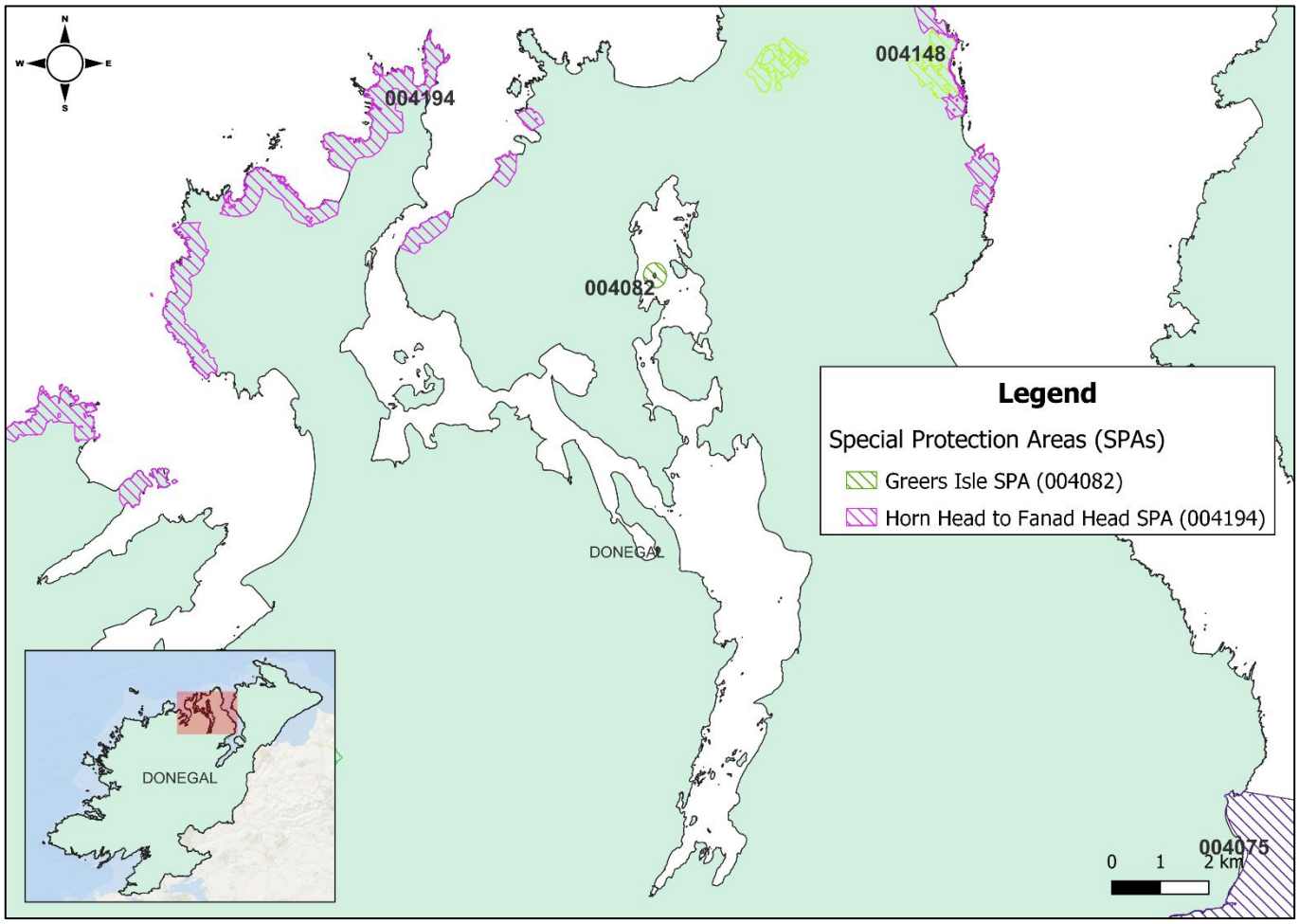

Figure 2-4: SPAs located in the Proposed Project area, Co. Donegal.

2.3. Screening Exercise

A key factor in the consideration as to whether or not a QI of a SAC or a SCI of a SPA is likely to be affected by a proposed project is the existence of connectivity (or interaction/ or impact pathway) between the designated feature and the impact mechanisms associated with the project. National guidance (DEHLG 2009) states that screening for AA should be carried out for any European site within the likely 'Zone of Impact' (Zol) of a plan or project.

Guidance outlines that the Zone of Impact must be evaluated on a case-by-case basis. The evaluation of the Zone of Impact considered the potential for effects to conservation features within (in-situ) and outside (ex-situ) the Proposed Project area and European sites, with reference to the nature, size and location of the project, its location in relation to individual European sites and the conservation objectives defined for their conservation features, and with reference to the sensitivities of the receptors, and the potential for in-combination effects.

The assessment of potential effect considered potential connectivity to European sites within the harvesting area (**Section 2.3.3.1**), along with potential effects to highly mobile protected conservation features species of more distant European sites that may occur in the harvesting area and thereby affected (**Section 2.3.3.2**).

2.3.1. Methodology Source-Pathway-Receptor (S-P-R) and Impact Assessment

The screening exercise considers potential *in situ* and *ex situ* effects to conservation features (*i.e.* potential effects to conservation features within or away from European sites respectively). In order to establish the Zone of Impact of the proposed development, the assessment of connectivity between impact mechanisms (or source) and a conservation feature (*i.e.* QIs of SACs and SCIs of SPAs) considers the location of the proposed activity relative to habitats and non-mobile species, species foraging distances and migration routes, and the proximity of the proposed activity to foraging and breeding areas, and potential changes in species behaviour, potential hydrological connectivity between the proposed activity and conservation features, effects on prey species resulting in alteration in interactions and associated impacts.

To inform the screening exercise, available data on protected habitats and species was mapped using a Geographic Information System (GIS) and interrogated to identify for source-pathway-receptor connectivity. The source (potential impact mechanisms), pathways (hydrological, physical or ecological connectivity) and receptors (conservation features) were identified based on a review of ecological surveys undertaken in the area, using QGIS software. The assessment of project impact sources (or mechanisms) considers all relevant aspects of the Proposed Project that have potential direct or indirect *in situ* and *ex situ* effects on conservation features.

2.3.2. Identification of Potential Impact Mechanisms based on the Nature, Size and Location of the Proposed Project

The impact mechanisms of concern in relation to the effects to conservation features of European sites associated with the Proposed Project are:

Potential Impact Mechanism 1 - Seabed habitat loss by uncovering of sediment and subsequent desiccation by sunlight thereby impacting certain species occurring in that area.

Potential Impact Mechanism 2 - Vessel collision risk and noise disturbance by the increase in the number of vessels in the area which may cause noise disturbance and increase collision risk to marine mammal species occurring in the area.

Potential Impact Mechanism 3 - Loss of prey biomass due to the removal of biomass that would have previously been taken up naturally by ecosystem, as well as uncovering previously hidden fauna *e.g.* winkles, crabs and fish thereby, making them vulnerable to predators.

Impact Mechanism 4 Physical Disturbance due to trampling flora and fauna by cutters during harvesting process and reduction in "dampening effect" of seaweed presence in the area, therefore increasing sediment erosion.

2.3.3. Potential for Significant Effects

This section presents a screening exercise of the potential effects (direct or indirect) of impact mechanisms associated with the proposed activity (**Section 2.3.2**) to conservation features of European sites.

The screening exercise considers the potential for the proposed activity to have significant *in situ* and *ex situ* effects on European sites (*i.e.* potential effects to conservation features within or away from European sites respectively). Where it cannot be excluded on the basis of objective information that the proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site then it is necessary to carry out a Stage 2 (*i.e.* NIS).

The next section (**Section 2.3.3.1**) presents a screening exercise of the interaction and potential impact to Qualifying Features of European site located within the harvesting area while **Section 2.3.3.2** considers interaction and potential impact to wider ranging qualifying features of SACs and SPAs located outside the harvesting area, that may be found in the vicinity of the Proposed Project area.

2.3.3.1. Conservation Features of European sites within the harvesting area

There are three European sites within the Proposed Project area, the Mulroy Bay SAC, the Sheephaven SAC and the Greers Isle SPA which include the whole harvesting area in the Proposed Project. QIs and SCIs are listed in **Table 2.1**, with respective conservation objectives, and screening assessments of potential significant effect of impact mechanism 1, 2, 3 and 4 to the conservation features of the European Site.

Table 2.1: Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of SACs and SPAs within the harvesting area. Potential significant effects to the QIs are highlighted in bold.

Mulroy Bay SAC (002159)				
QIs and SCIs (*=Priority)	**Ecological Group**	**Conservation Objective**	**Impact Mechanism**	**Source-Pathway-Receptor Assessment**
Tidal Mudflats and Sandflats [1140]	Annex I marine/coastal habitat	Not defined	1. Seabed habitat loss 2. Vessel collision risk and noise disturbance 3. Loss of prey biomass 4. Physical disturbance	Tidal mudflats and sandflats contain some quantities of suitable hard substrate (stones/rocks) which is particularly important for *Ascophyllum nodosum* to attach. Although this can pose some disturbance to this QI, the number of cutters (1 or 2) and the harvesting approach used in the Proposed Project, the impact is considered to have an insignificant effect on this QI. The QIs and impact mechanism combinations are screened out of further assessment.
Large Shallow Inlets and Bays [1160]		Maintain the favourable conservation condition		The harvesting area will not include this QIs; consequently, it is possible to exclude the potential for significant effects at the Screening for AA stage. The QIs and impact mechanism combinations are screened out of further assessment.
Reefs [1170]				As the Ascophyllum grows on rocky intertidal reefs, some level of disturbance is expected to occur in this QI due to the harvesting activity. Although some reef species may be trampled during the cutting process and become more exposed to predators and/or desiccation, no significant effects will be experienced to this QI given the low rate of harvesting and the sustainable approach to the harvesting activity. The QIs and impact mechanism combinations are screened out of further assessment.
Otter (*Lutra lutra*) [1355]	Annex II marine species	Restore the favourable conservation condition		This QI is known to be a highly mobile species, which has the potential to forage outside this area, consequently occurring in the harvesting area. Although this species is likely to occur in the harvesting area, the presence of one cutter is unlikely to have a

				significant effect of this QI. Additionally, the increase of a slow vessel in this area will likely trigger avoidance behaviour by this species, therefore effects of vessel collision and noise disturbance are assessed to not have any significant impact on this species. The QIs and impact mechanism combinations are screened out of further assessment.
Sheephaven SAC (001190)				
Tidal Mudflats and Sandflats [1140]	Annex I marine/coastal/ terrestrial habitats	Maintain the favourable conservation condition	1. Seabed habitat loss 3. Loss of prey biomass 4. Physical disturbance	Tidal mudflats and sandflats contain some quantities of suitable hard substrate (stones/rocks) which is particularly important for *Ascophyllum nodosum* to attach. Although this can pose some disturbance to this QI, the number of cutters (1 or 2) and the harvesting approach used in the Proposed Project, the impact is considered to have an insignificant effect on this QI. The QIs and impact mechanism combinations are screened out of further assessment.
Annual Vegetation of Drift Lines [1210]		Not defined		The QIs are located outside of the harvesting area and no Ascophyllum is known to occur in this QI; consequently, it is possible to exclude the potential for significant effects at the Screening for AA stage. The QIs and impact mechanism combinations are screened out of further assessment.
Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]				The QIs are located outside of the harvesting area and no Ascophyllum is known to occur in this QI; consequently, it is possible to exclude the potential for significant effects at the Screening for AA stage. The QIs and impact mechanism combinations are screened out of further assessment.
Salicornia Mud [1310]				
Atlantic Salt Meadows [1330]		Restore the favourable conservation condition		
Mediterranean Salt Meadows [1410]		Maintain the favourable conservation condition		
Embryonic Shifting Dunes [2110]		Not defined		
Marram Dunes (White Dunes) [2120]		Restore the favourable		

Fixed Dunes (Grey Dunes)* [2130]		conservation condition		
Humid Dune Slacks [2190]		Not defined		
Machairs* [21A0]		Maintain the favourable conservation condition		
Old Oak Woodlands [91A0]				
Petalwort (*Petalophyllum ralfsii*) [1395]	Annex II plant species			This QI is not known to occur in the harvesting area; consequently, it is possible to exclude the potential for significant effects at the Screening for AA stage. The QIs and impact mechanism combinations are screened out of further assessment.
Marsh Fritilary (*Euphydryas aurinia*) [1065]	Annex II terrestrial invertebrate species	Not defined		
Greers Isle SPA (004082)				
Black-headed Gull (*Chroicocephalus ridibundus*) [A179]	Annex I bird species	Maintain or restore the favourable conservation condition	4. Physical disturbance	These SCIs are known to feed on the exposed intertidal zone; therefore, the presence of the cutters may cause disturbance to these bird species. The number of cutters during the harvesting process is around one or two cutters thus the impact by disturbance of the cutters is assessed to not have any significant impact on these SCIs. The SCIs and impact mechanism combinations are screened out of further assessment.
Common Gull (*Larus canus*) [A182]				
Sandwich Tern (*Sterna sandvicensis*) [A191]				This species is known to feed in the intertidal zone at high tide. The presence of the cutters in this area is planned to occur at half ebbing and half flood tide, thus the impact by disturbance of the cutters is assessed to not have any significant impact on these SCIs. The SCI and impact mechanism combinations are screened out of further assessment.

2.3.3.2. Conservation Features of Distant European Sites

A range of protected habitats and mobile species designated for distant SPAs and SACs have been included at this stage due to the potential of significant effects on these qualifying features by the Proposed Project (*i.e.* potential *ex situ* effects). QIs and SCIs are listed in **Table 2.2**, with respective conservation objectives, and screening assessments of potential significant effect of impact mechanism 1, 2, 3 and 4 to the conservation features of the European Site.

Table 2.2: Qualifying Features of SACs and SPAs outside the harvesting area. Potential significant effects to the QIs are highlighted in bold.

Kindrum Lough SAC (001151)				
QIs and SCIs (*=Priority)	**Ecological Group**	**Conservation Objective**	**Impact Mechanism**	**Source-Pathway-Receptor Assessment**
Oligotrophic to Mesotrophic Standing Waters [3130]	Annex I coastal habitat	Restore the favourable conservation condition	1. Seabed habitat loss 3. Loss of prey biomass 4. Physical disturbance	The QI are located outside of the harvesting area and the species Slender Naiad is not known to occur in the harvesting area; consequently, it is possible to exclude the potential for significant effects at the Screening for AA stage. The QIs and impact mechanism combinations are screened out of further assessment.
Slender Naiad (*Najas flexilis*) [1833]	Annex II aquatic plant species			
Lough Nagreany Dunes SAC (00164)				
Embryonic shifting dunes [2110]	Annex I coastal/terrestrial habitat	Maintain the favourable conservation condition	1. Seabed habitat loss 3. Loss of prey biomass 4. Physical disturbance	The QIs are located outside of the harvesting area and the species Slender Naiad is not known to occur in the harvesting area; consequently, it is possible to exclude the potential for significant effects at the Screening for AA stage. The QIs and impact mechanism combinations are screened out of further assessment.
Marram Dunes (White Dunes) [2120]		Not defined		
Fixed Dunes (Grey Dunes)* [2130]		Restore the favourable conservation condition		
Decalcified Empetrum Dunes* [2140]		Maintain the favourable conservation condition		
Decalcified Dune Heath* [2150]				
Dunes with Creeping Willow [2170]				
Humid Dune Slacks [2190]		Not defined		
Machairs* [21A0]				
Oligotrophic to Mesotrophic Standing Waters [3130]		Maintain the favourable conservation condition		
Slender Naiad (*Najas flexilis*) [1833]	Annex II aquatic plant species			
Horn Head to Fanad Head SPA (004194)				
Fulmar (*Fulmarus glacialis*) [A009]	Annex I bird species	Maintain or restore the favourable conservation	1. Seabed habitat loss 3. Loss of prey biomass 4. Physical disturbance	The SCI is located outside of the harvesting area; consequently, it is possible to exclude the potential for significant effects at the Screening for AA stage. The SCI and impact mechanism combinations are screened out of further assessment.
Cormorant (*Phalacrocorax carbo*) [A017]				This species is known to occur in intertidal rocks which may

				be disturbed by the presence of the cutters however, due to the low numbers of cutters (1 to 2) it is considered to not have any significant impact on this species. The SCI and impact mechanism combinations are screened out of further assessment.
Shag (*Phalacrocorax aristotelis*) [A018]				The SCI is located outside of the harvesting area; consequently, it is possible to exclude the potential for significant effects at the Screening for AA stage. The SCI and impact mechanism combinations are screened out of further assessment
Barnacle Goose (*Branta leucopsis*) [A045]				This SCI is known to feed on grass in this site, which may be disturbed by the presence of the cutter in the intertidal zone. However, this species feeding areas include offshore island areas, therefore there is no potential likelihood for significant effects from the Proposed Project on this SCI. The SCI and impact mechanism combinations are screened out of further assessment.
Peregrine (*Falco peregrinus*) [A103]				The SQI is located outside of the harvesting area; consequently, it is possible to exclude the potential for significant effects at the Screening for AA stage. The SCI and impact mechanism combinations are screened out of further assessment.
Kittiwake (*Rissa tridactyla*) [A188]				These species are not known to feed on exposed intertidal zone, consequently it is possible to exclude the potential for significant effects at the Screening for AA stage. The SCIs and impact mechanism combinations are screened out of further assessment.
Guillemot (*Uria aalge*) [A199]				
Razorbill (*Alca torda*) [A200]				
Chough (*Pyrrhocorax pyrrhocorax*) [A346]				
Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]				

2.3.4. 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 are considered in-combination with other relevant plans or projects. The assessment of potential in combination effects considers the potential impact mechanisms associated with the proposed activity that in combination with other plans and project may result in significant effects to QIs and SCIs.

To inform the assessment of potential in combination effects a review was undertaken of consent applications for projects in the vicinity of the Proposed Project included on the following web-sites:

- Donegal County Council - (Donegal County Council (donegalcoco.ie))
- Aquaculture Information Management System (AQUAMIS) - (Licensed Aquaculture Sites (22/06/2022) (marine.ie)

The assessment of potential in-combination effects also considered relevant negative impacting activities (threats and pressures) and, positive impacting activities/ management affecting the sites as identified in the Natura 2000 forms published for the sites.

In combination effects assessment as described in the accompanying AIMU report follows the approach described in the European Commission Notice Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive (EC, 2021). The assessment is informed by defining

- *Cumulative Effects Spatial Scope (CESS)*
- *Cumulative Effects Temporal Scope (CETS)*

Mulroy Bay supports many aquaculture activities which include salmon farming, long line mussel farming, lantern nets for scallop, and intertidal trestles for oyster production. Some seaweed species

are also cultured. The current aquaculture activities can be seen in **Figure 2-5,** and the activities that may pose a risk of acting in-combination with the Proposed Project are listed in **Table 2.3**.

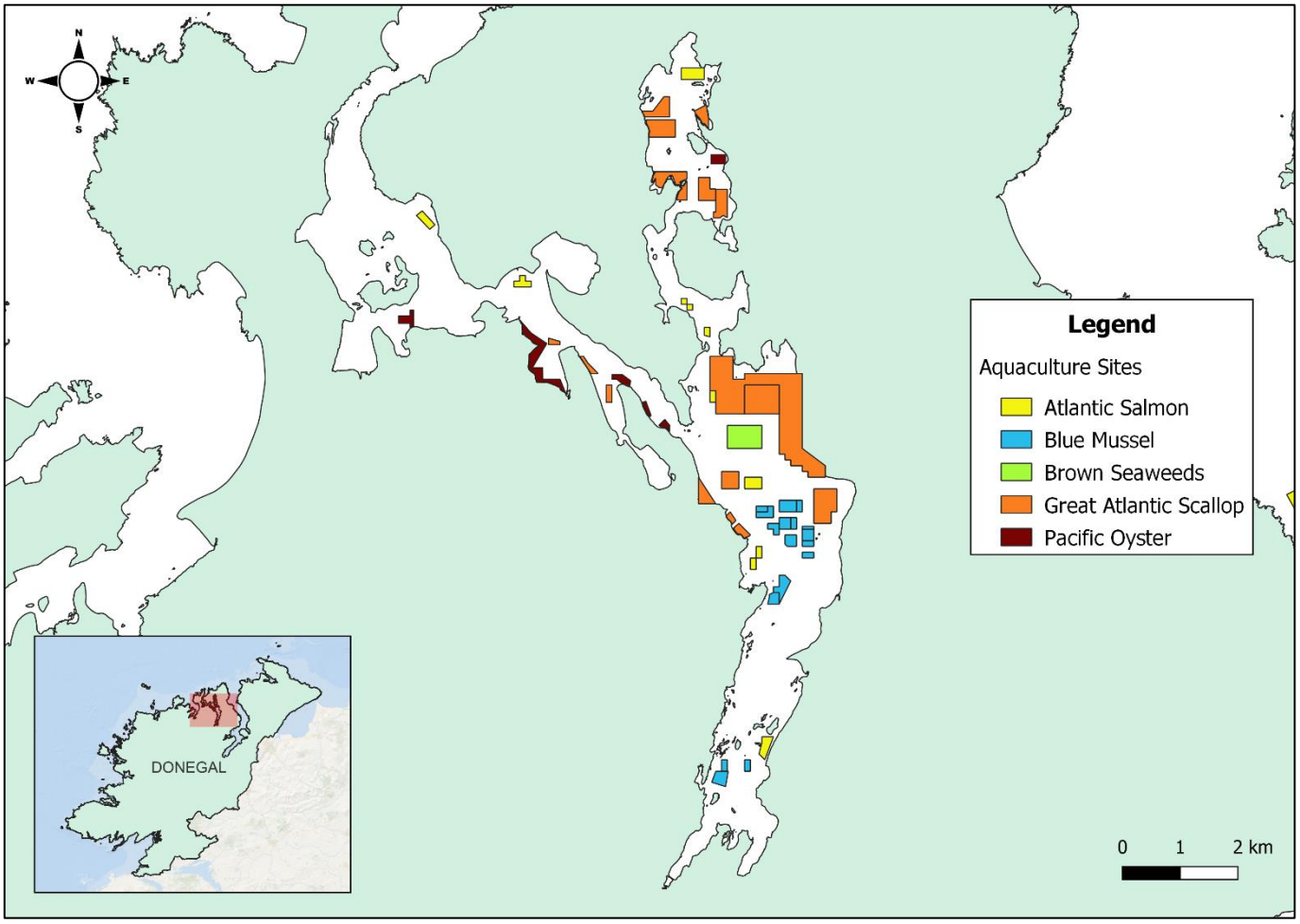

Figure 2-5: Location of aquaculture activities in the harvesting area of the Proposed Project.

Table 2.3: Aquaculture activities with respective status and species, in the harvesting area of the Proposed Project.

Project Site ID	Location	Status	Aquaculture Type	Species
T12/212	Mulroy Bay	Licensed	Shellfish	Blue Mussel
T12/203A				Great Atlantic Scallop
T12/203E				
T12/203F				
T12/203G				
T12/203H				
T12/209				Blue Mussel
T12/202C				
T12/274A				Pacific Oyster
T12/281B				

T12/260C				
T12/252A				
T12/252B				
T12/209A				Blue Mussel
T12/209B				
T12/011				
T12/053B				
T12/082A				
T12/082B			Finfish	Atlantic Salmon
T12/082C				
T12/085				
T12/053C				Blue Mussel
T12/203B				
T12/203C				Great Atlantic Scallop
T12/203D				
T12/203J				
T12/203K				
T12/011/1				Blue Mussel
T12/252				
T12/260A				
T12/260B			Shellfish	
T12/202/1B				
T12/387B				
T12/387A				
T12/387C				Great Atlantic Scallop
T12/387D				
T12/387E				
T12/387F				
T12/400A				Pacific Oyster
T12/414A				
T12/497A			Seaweed	Brown Seaweeds and Red Seaweeds
T12/499A				Blue Mussel
T12/387G 1			Shellfish	
T12/387G 2				Pacific Oyster
T12/387G 3				
T12/077A				
T12/077B				
T12/077C			Finfish	Atlantic Salmon
T12/077D				
T12/077E				
T12/077F				

Mulroy bay can support a range of activities as it is sheltered and has water depths up to 51m deep in the inner most part of the bay, as well as areas of intertidal sands. Salmon farms, mussel longlines and lantern nets require a minimum water depth of 10m, while sites for oyster trestles are limited to areas of clean sand. Additionally, it is important to note that *Ascophyllum* is limited in its distribution to intertidal areas of reef or rock as it anchors itself via a holdfast (root) to these substrates. Therefore, there is no possible interaction between the Proposed Project and salmon farming, mussel longlines, lantern nets or brown seaweed sites.

Locations of oyster production sites are composed of clean sand or close to low water. Due to this, it is very unlikely for *Ascophyllum* to occur in this area therefore, there are no potential interactions between *Ascophyllum* harvesting and oyster/clam production in any of the areas. Additionally, harvesting levels are also restricted to *ca* 10% of the standing stock, therefore no reduction in detritus levels is foreseen.

There is no likelihood for significant effects from the Proposed Project in combination with the plans or projects mentioned above.

2.4. Screening Outcome

The screening exercise investigates the potential for the proposed project to have significant effects on European Sites within the Natura 2000 network. The exercise has determined, in light of best available scientific data, that there is no potential for significant effects on the conservation features of the Mulroy Bay SAC, the Sheephaven SAC, the Kindrum Lough SAC, the Lough Nagreany Dunes SAC, the Greers Isle SPA and the Horn Head to Fanad Head SPA from the Proposed Project. The findings of the screening exercise are summarised in **Table 2.4.**

Table 2.4: Screening matrix of the Proposed Project.

Screening Matrix

Brief description of the project or plan	OGT is planning to harvest up to 2,000 wet tonnes of *Ascophyllum nodosum* from the harvestable area in Mulroy Bay, for processing in its plant at Kilcar, Co. Donegal which produces fertilisers and feeds for animals. The seaweed will be harvested by hand in the tradition manner. This involves using local cutters each working within a specific area. The seaweed will be cut at low tide using a knife, leaving approximately 15-20cm attached to the substrate to ensure re-growth of the plant. The seaweed will then be gathered using a fork into bundles (local term cailleach/caillaí) of approximately 1t, that are bound by nets (**Figure 2-2**) and ropes and left on the intertidal shoreline. These caillaí float at high water and are towed usually by a small boat to a suitable pier for collection by a lorry with a crane. They are lifted directly from the seashore by the crane onto the lorry.
European Site(s)	
Brief description of the relevant European site(s)	The European site within the harvesting area of the Proposed Project site is: • Mulroy Bay SAC (Site code: 002159) • Sheephaven Bay SAC (Site code: 001190) • Greers Isle SPA (Site code: 004082) Other distant SPAs and SACs have been included at this stage due to the potential of significant effects on these qualifying features by the Proposed Project (*i.e.* potential *ex situ* effects): • Kindrum Lough SAC (Site code: 001151) • Lough Nagreany Dunes SAC (Site code: 000164) • Horn Head to Fanad Head SPA (Site code: 004194) The QIs and SCIs of the above SACs and SPAs are listed in **Table 2.1** and **Table 2.2** alongside conservation objectives set for the conservation features.
Assessment Criteria	

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.	Given the nature of the proposed activities and the biological receptors, the potential project impact mechanisms (or sources of potential impact to the environment) are: 1. **Seabed Habitat loss** by uncovering of sediment and subsequent desiccation by sunlight thereby impacting certain species occurring in that area. 2. **Vessel collision risk and noise disturbance** by the increase in the number of vessels in the area which may cause noise disturbance and increase collision risk to marine mammal species occurring in the area. 3. **Loss of prey biomass** due to the removal of biomass that would have previously been taken up naturally by ecosystem, as well as uncovering previously hidden fauna *e.g.* winkles, crabs, fish thereby making them vulnerable to predators. 4. **Physical Disturbance** due to trampling flora and fauna by cutters during harvesting process and reduction in "dampening effect" of seaweed presence in the area thereby increasing sediment erosion.
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 Size and scale, Land take	The assessment of potential in-combination effects considers other plans and projects, which may result in cumulative significant effects QIs and SCIs of SACs and SPAs. These plans/projects encompass a range of aquaculture sites in Mulroy Bay (see **Section 2.3.4)** and it is concluded that there is no potential likelihood for significant effects caused by cumulative or in-combination effects.
Distance from the Natura 2000 site or key interests of the site;	The Proposed Project area falls within the Mulroy Bay SAC, the Sheephaven SAC and the Greers Isle SPA. The other SACs and SPAs included are at the respective distances of the Proposed Project area: • Kindrum Lough SAC (approximately 100m north) • Lough Nagreany Dunes SAC (approximately 1km north) • Horn Head to Fanad Head SPA (approximately 1.5km north)
Resource requirements (water abstraction etc.);	No resources will be required for the Proposed Project.
Emissions (disposal to land, water or air);	Emissions from the Proposed Project will result from engine exhaust gases from engines associated with the vessel.
Excavation requirements; Transportation requirements;	No excavation will be required. After the bundles of seaweed are brought to shore, they will be towed usually by a small boat to a suitable pier for collection by a lorry with a crane. They are then lifted directly from the seashore by the crane onto the lorry.
Duration of construction, operation, other.	Harvesting of one callaí takes approximately 3 hours, and 1 to 2 callaí will be collected per day, weather and tide permitting. A fallow system will be employed where areas are harvested one year and not returned to until the seaweed has recovered.

Describe any likely changes to the site arising as a result of: Reduction in habitat area; Disturbance to key species; Habitat or species fragmentation; Reduction in species in density; Changes in key indicators of conservation value (water quality etc.); Climate change	It is concluded that there is no potential likelihood for significant effects caused by the Proposed Project in isolation or in combination with other plans and projects regarding the following aspects of SACs and SPAs: • Reduction in habitat area • Disturbance to key species • Habitat or species fragmentation • Reduction in species density • Water quality • Climate change
Describe any likely impacts on the Natura 2000 site in terms of: Interference with the key relationships that define the structure of the site; Interference with key relationships that define the function of the site.	It is concluded that there is no potential likelihood for significant effects caused by the Proposed Project in isolation or in combination with other plans and projects.
Provide indicators of significance as a result of the identification of effects set out above in terms of: Loss; Fragmentation; Disruption; Disturbance; Change to key elements of the site.	Indicators of significance are loss of SCI and QI species and habitats. Indicators of significance are behavioural changes in SCI and QI species. It is concluded that there is no potential likelihood for significant effects caused by the Proposed Project in isolation or in combination with other plans and projects.
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.	It is concluded that there is no potential likelihood for significant effects caused by the Proposed Project in isolation or in combination with other plans and projects.

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