GDG
GAVIN & DOHERTY
GEOSOLUTIONS

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

ogt
— A ROVENSA COMPANY —

Client	**Rovensa NEXT (OGT)**
Document Ref.	JN1707 Dungloe SISAA_GDG24052_Addendum001
Project Title	Seaweed Support Rovensa OGT
Date	12/09/2024

Project Title:	Seaweed Support Rovensa OGT
Report Title:	Supporting Information for Screening for Appropriate Assessment for Seaweed Harvesting Maritime Usage Licence (Dungloe Bay) with Addendum.
Document Reference:	JN1707 Dungloe SISAA_GDG24052_Addendum001

Client:	Oilean Glas Teoranta (OGT)
Ultimate Client:	Oilean Glas Teoranta (OGT)
Confidentiality	Non Confidential

REVISION HISTORY

Rev	Date	Reason for Issue	Originator	Checker	Reviewer	Approver
[00]	31/07/2024	Draft for client review	[redacted]			
01	12/09/2024	Final				

DISCLAIMER

REVISION SUMMARY

Rev	Date	Section(s)	Detail of Change
[00]	[Selec]	[Section]	[Enter details]

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 "2,000 wet tonnes of *Ascophyllum nodosum*" to "8,000 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 "2,000 wet tonnes of *Ascophyllum nodosum*" to "8,000 wet tonnes per annum of *Ascophyllum nodosum*".
2.3.1	Changed "development" to "activity"
2.3.2	Addition of Potential Impact Mechanism "*Disturbance to life cycle due to human, boat and vehicular traffic*"

Section	Amendment
Table 2.1Harbour Seal row	Addition of Impact Mechanism "*Disturbance to life cycle".*
Table 2.1	Text added after the table to justify Disturbance to Life Cycle
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)*
Table 2.4	Changed "2,000 wet tonnes" to "8,000 wet tonnes per annum"
2.4	Changed text "that there is no potential for significant effects on the conservation features of the Rutland Island and Sound SAC, the Gweedore Bay and Islands SAC, the Termon Strand SAC, the Aran Island (Donegal) Cliffs SAC, the Illancrone and Inishkeeragh SPA and the West Donegal Coast SPA from the Proposed Project." to "there is potential for significant effects on the conservation features of the Rutland Island and Sound SAC. No significant effects were identified for the Gweedore Bay and Islands SAC, the Termon Strand SAC, the Aran Island (Donegal) Cliffs SAC, the Illancrone and Inishkeeragh SPA and the West Donegal Coast SPA from the Proposed Project."
Table 2.4, row 'Brief description of the project or plan'	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." after "They are lifted directly from the seashore by the crane onto the lorry."
Table 2.4, row '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.'	**5. Disturbance to life cycle** of harbour seals (QIs of the Rutland Island and Sound SAC) from the presence of humans (i.e. the harvesters) in the intertidal zone may cause seals to alter their resting and foraging behaviours.
Table 2.4, row 'Describe any likely direct, indirect or secondary impacts of the project (either alone or in	Changed "and it is concluded that there is no potential likelihood for significant effects caused by cumulative or in-combination effects." to "and it is concluded that there is potential for significant effects caused by cumulative or in-combination effects."

Section	Amendment
combination with other plans or projects) on the Natura 2000 site by virtue of Size and scale, Land take'	
Table 2.4, row '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'	Changed "It is concluded that there is no potential likelihood for significant effects caused by the Proposed Project" to "It is concluded that there is potential for significant effects caused by the Proposed Project". Removed the following text: • "Water Quality • Climate Change" Text added: • "Long-term habitat abandonment"
Table 2.4, row '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.'	Changed "that there is no potential likelihood for significant effects" to "that there is potential for significant effects". Text added "Hand harvesting seaweed involves manual collection of seaweed along the intertidal zones and potential disturbances include human presence and habitat modification as a result. Aquaculture sites include activities such as shellfish farming, fish farming, and seaweed cultivation. Potential disturbances include human presence, boat traffic and habitat alteration. Disturbance to life cycle of harbour seals (QIs of the Rutland Island and Sound SAC) from the presence of humans (i.e. the harvesters) in the intertidal zone may cause seals to alter their resting and foraging behaviours. These species rely on the coastal and marine habitats within the SAC for critical aspects of their life cycle, including breeding, moulting, resting, and foraging. Repeated human presence can cause seals to become increasingly wary of using these areas, leading to habitat abandonment of traditional breeding sites over time, leading to reduced use of these areas for pupping. Displacement during moulting season from these sites can expose them to harsher conditions, affecting their health during the moulting process as a result of thermal stress due to displacement. Any adverse impacts on their populations could undermine the conservation objectives of the SAC."
Table 2.4, row 'Provide indicators of significance as a result of the identification of	Changed "It is concluded that there is no potential likelihood for significant effects" to "It is concluded that there is potential for significant effects".

Section	Amendment
effects set out above in terms of: Loss; Fragmentation; Disruption; Disturbance; Change to key elements of the site.'	
Table 2.4, row '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.'	Text removed "It is concluded that there is no potential for likelihood significant effects caused by the Proposed Project in isolation or in combination with other plans and projects." Text added: "**Disturbance to life cycle including habitat abandonment**: Likelihood: High, due to the overlapping spatial and temporal occurrence of these activities, including in-combination effects from other activities including aquaculture, with recorded breeding, moulting and resting locations within the SAC. Magnitude: Significant, as seals may experience more frequent disturbances, leading to increased stress, energy expenditure and habitat abandonment."
2.5 Screening Outcome Conclusion	Section 2.5, including all text, was added.

Proposed Hand-Harvesting of *Ascophyllum nodosum* in Rutland Island and Sound Special Area of Conservation, Dungloe, Co. Donegal.

Screening Statement for Appropriate Assessment

Produced by

AQUAFACT International Services Ltd

On behalf of

Oilean Glas Teoranta

June 2022 (updated July 2024)

AQUAFACT International Services Ltd.,
[redacted]
www.aquafact.ie
info@aquafact.ie

Tel: +353 (0) 91 756812

Document Control/ Approval Sheet

Client	Oilean Glas Teo
Report Title	Proposed Hand-Harvesting of *Ascophyllum nodosum* in Rutland Island and Sound Special Area of Conservation, Dungloe, Co. Donegal. – Screening Statement for Appropriate Assessment
Job Number	JN1707
Report Status	Draft
Issue Date	21/06/2022

Rev	Status	Issue Date	File Name	Author(s)	Approved By
1	Draft	22/06/2022	JN1707 Dungloe SSAA	[redacted]	
2	Draft	25/07/2022	JN1707 Dungloe SSAA		

Table of Contents

List of Figures

List of Tables

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 Teoranta (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 Rutland Island and Sound Special Area of Conservation, Dungloe, Co. Donegal (the 'Proposed Project'). This report will focus on the impacts that the proposed project will have on the qualifying features 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 8,000 wet tonnes per annum of *Ascophyllum nodosum* off Dungloe 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 Rutland Island and Sound 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).

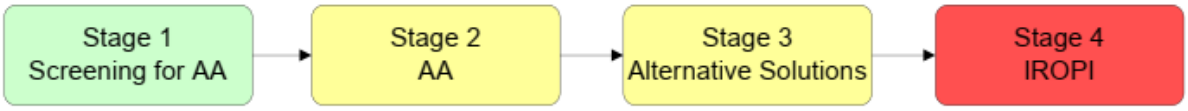

Figure 1-1: Four stages of the Appropriate Assessment Process.

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

1.2.2. 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):

[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.

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] is the [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] s 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 8,000 wet tonnes per annum of *Ascophyllum nodosum* off Dungloe Bay for processing in its plant at Kilcar, Co. Donegal which produces fertilisers and feeds for animals. This will be collected from the harvestable area within Rutland Island and Sound 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 3 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* which 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.

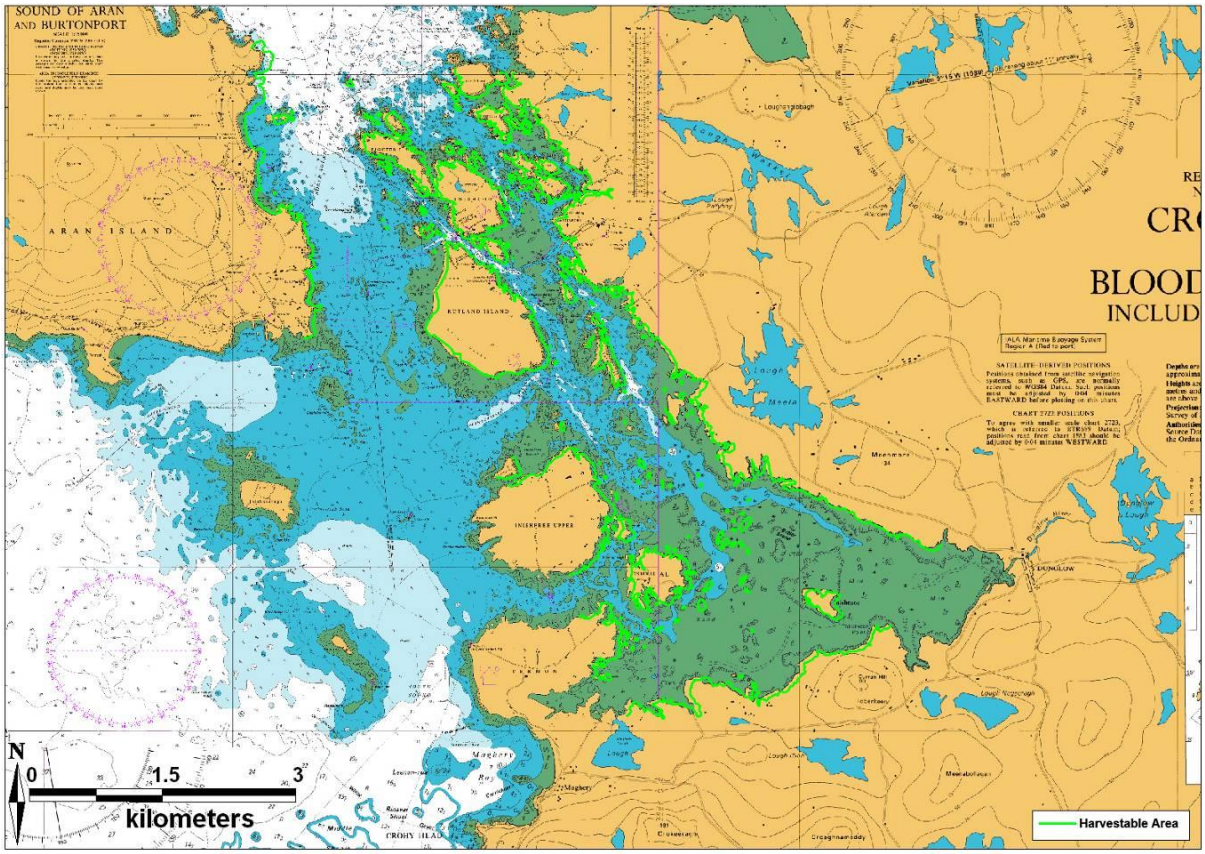

Figure 2-1: Location of the *Ascophyllum nodosum* harvestable area located near Dungloe, Co. Donegal.

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 the Rutland Island and Sound SAC, and includes a wide variety of island shores, such as Termon, Inishal, Inishfree Upper, Rutland Island, Inishcoo and Aran Island. 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 is one Special Area of Conservation site within the Proposed Project area, which includes the whole harvesting area and three other SACs in close proximity with the harvesting area:

- Rutland Island and Sound SAC (Site code: 002283) (within the Proposed Project area)
- Gweedore Bay and Islands SAC (Site code: 001141) (around 330 m northeast of the Proposed Project area)
- Termon Strand SAC (Site code: 001195) (around 20 m west of the Proposed Project area)
- Aran Island (Donegal) Cliffs SAC (Site code: 000111) (around 7.5 km northeast of the Proposed Project)

Rutland Island and Sound SAC (002283)

This European site lies between Aran Island and Burtonport in northwest Donegal, 5km northwest of Dungloe. The shoreline of the SAC is indented with a mixture of clean sand in some areas and bedrock in others, with other areas having a mixture of mud, sand, rocks and boulders. This site is designated for the following QIs:

- Coastal Lagoons [1150]
- Large Shallow Inlets and Bays [1160]
- Reefs [1170]
- Annual vegetation of drift lines [1210]
- Embryonic shifting dunes [2110]
- Marram Dunes (White Dunes) [2120]
- Fixed Dunes (Grey Dunes) [2130]
- Humid Dune Slacks [2190]
- Common (Harbour) Seal (*Phoca vitulina*) [1365]

Rutland Island is surrounded by numerous islands, islets and rocky outcrops of varying sizes. The largest island is Aranmore which lies to the west. Other islands in the SAC include Inishfree Upper, Inishal, Inishkeeragh, Inisheane, Inishmeal and Inishcoo (NPWS, 2014a).

Sally's Lough to the northeast of the SAC, is a saline lake lagoon which supports lagoonal specialist species such as *Ruppia* spp., *Chaetomorpha linum, Onoba aculeus, Cerastoderma glaucum, Idotea chelipes and Conopeum seurati.* Rare species in Ireland such as *Cladophora battersii, Ampithoe ramondi and Lembos longipes* have also been recorded on the site. Rutland Channel and Sound is a complex of shallow reefs and sediment communities sheltered from wave action with varying degrees of currents. The intertidal reefs are typical of these conditions with high species richness in the tide-swept sublittoral fringe. The shallow sublittoral reefs have excellent examples of tide-swept kelp communities with varying degrees of sand scour, in which species richness is high. A number of species considered to be worthy of conservation occur, in particular the sea squirt *Stolonica socialis.* The site displays a range of sediment types from coarse shelly sand to fine sand. The free-living red calcareous algae known as maerl (also known as 'coral') occurs at several locations at the more open coastal sites on the south of Rutland Island. Beds of seagrass *Zostera marina*, which host the rare hydroid *Laomedea angulata* and the southern species of burrowing anemone *Anthopleura ballii*, are also present (NPWS, 2014a; MERC, 2008). A BioMAR study in 1996 recorded maerl, the free-living red calcareous algae, within the SAC. However, a later survey by MERC (2008) failed to locate these maerl communities. This site also supports a population of common (harbour) seals, which are listed under Annex II of the Habitats Directive (NPWS, 2014a).

This site contains important examples of eight habitats listed under Annex I of the Habitats Directive, one marine mammal species under Annex II of the Habitats Directive, and a number of rare marine species is also present, adding further conservation importance to this site.

Gweedore Bay and Islands SAC (001141)

This is an extensive coastal site situated between Bloody Foreland in the north and Burtonport in the south, and near the towns of Derrybeg, Bunbeg and Annagary. It includes a large stretch of coastline, many islands, including Inishsirrer, Inishmeane, Gola, Umfin, Inishfree Lower, Cruit and Owey and areas of marine water between the islands and the coast (NPWS, 2014b). The site is designated for the following QIs:

- Coastal Lagoons [1150]
- Reefs [1170]
- Perennial vegetation of stony banks [1220]
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]

- Mediterranean salt meadows [1410]
- 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]
- Dry Heath [4030]
- Alpine and Subalpine Heaths [4060]
- Juniper Scrub [5130]
- Marsh Fritillary (*Euphydryas aurinia*) [1065]
- Otter (*Lutra lutra*) [1355]
- Petalwort (*Petalophyllum ralfsii*) [1395]
- Slender Naiad (*Najas flexilis*) [1833]

Areas of machair grassland and sand dunes occur in several places along the coast and large areas of sandflats are exposed off the coast at low tide. Areas of dry heath are common along the exposed rocky shores of this site which are not dominated by sand-dunes or related habitats.

The site includes many other coastal habitats, *i.e.* areas of sandflats, saltmarsh, sandy beaches, boulder beaches, rocky foreshore and sea cliffs, inlets, bays, open marine water, reefs, islets, brackish water lakes/inlets and Sea Buckthorn (*Hippophae rhamnoides*) scrub, amongst others. This diverse site also includes areas of grassland, lakes, freshwater marsh, cutaway bog and Sessile Oak (*Quercus petraea*) woodland. Many of the islands in the site are used by breeding seabirds (Common Gull, Herring Gull, Black-headed Gull, Lesser Black-backed Gull, Common Tern, Arctic Tern). Several of the bird species that use the site are listed on Annex I of the Birds Directive, *i.e.* Barnacle Goose, Chough, Great Northern Diver, Storm Petrel and the Tern species and, as such, are of particular significance. Otters are also present at this site and are considered to be common and breeding.

The site is of high ecological value for the occurrence of a wide range of coastal habitats, as well as the presence of populations of three Annex II species of the Habitats Directive and of several Annex I species of the Birds Directive (NPWS, 2014b).

Termon Strand SAC (001195)

This site is situated in a small coastal area around the village of Maghery, about 5 km southwest of Dungloe in west of Co. Donegal. This site is designated for the QI of coastal lagoon [1150], Maghery Lough, which includes a narrow, modified tidal inlet separated from the sea by low sandy ground and a sand dune system. Seawater enters the lagoon on most tides, however the salinity is lowered by multiple small streams which flow into the lagoon from surrounding hills. Some species recorded in this site are designated as lagoonal specialists in Britain which include, *Cerastoderma glaucum* (a mollusc)*, Idotea chelipes* (Order Isopoda)*, Palaemonetes varians* (Order Decapoda) and *Conopeum seurati* (a bryozoan). Another three additional species present in this site, (*Jaera ischiosetosa* and *J. nordmanni* - both Order Isopoda, and *Neomysis integer* – Order Mysida) are proposed lagoonal specialists for Ireland. Maghery Lough is also of local value for wintering waterfowl, including Mute Swan, Wigeon, Goldeneye and occasional Whooper Swan. The beach and mudflats are used by other birds such as Shelduck, Curlew and Ringed Plover (NPWS, 2014c).

This site also includes the rare plant species Foxtail Stonewort (*Lamprothamnion papulosum*), and other species such as, two species of Tasselweed (*Ruppia maritima* and *R. cirrhosa*) and the Eelgrass species (*Zostera marina*) (NPWS, 2014c).

At the back of Maghery Strand, the sand dunes species Marram (*Ammophila arenaria*) and Sand Sedge (*Carex arenaria*) are the dominant species, and the species Sea Couch (*Elymus farctus*) is found closer to the beach. In the north of the site, areas of wet grassland are found, with herbs such as Selfheal (*Prunella vulgaris*), Common Knapweed (*Centaureanigra*) and Yellow Iris (*Iris pseudacorus*) occurring. The site includes a small area of mudflats in the extreme north, fringed in parts by saltmarsh.

The site is of particular importance for the presence of a lagoon, a much threatened habitat in western Europe (NPWS, 2014c).

Aran Island (Donegal) Cliffs SAC (000111)

Aran Island is a 18km^2 island situated around 4 km west of Burtonport in Co. Donegal (NPWS, 2014d). The site is designated for the following QIs:

- Vegetated Sea Cliffs [1230]
- Dry Heath [4030]
- Alpine and Subalpine Heaths [4060]
- Calcareous Rocky Slopes [8210]
- Siliceous Rocky Slopes [8220]
- Sea Caves [8330]

The site is consisted of rocky sea cliffs which form the north and west, and part of the south coasts of the island. The cliffs rise to 150 m and are composed of Ards quartzites with some igneous intrusions. Several sea caves, mostly intertidal, have been noted on the western and northern coasts of the island (NPWS, 2014d).

The vegetation of the cliffs of Aran Island includes a few plants on the sheer cliffs, while an interesting flora occurs on the fissures of limestone and siliceous cliffs. All the plants are tolerant of saline exposure, including Sea Campion (*Silene vulgaris* subsp. *maritima*), Sea Mayweed (*Matricaria maritima*), Roseroot (*Rhodiola rosea*) down to spray-level, Common Scurvygrass (*Cochlearia officinalis*), Sea Spleenwort (*Asplenium marinum*) and Rock Sea-spurrey (*Spergularia rupicola*).

This site also comprises of dry heath areas with the cliff vegetation and coastal grassland at the west of the site and especially the southwest. The heath component supports Heather (*Calluna vulgaris*), wood-rushes (*Luzula* spp.), Heath Bedstraw (*Galium saxatile*), Tormentil (*Potentilla erecta*) and mosses including *Rhytidiadelphus loreus, Hylocomnium splendens, Polytrichum* spp. and *Pseudoscleropodium purum*.

The site is of ornithological importance for several bird species, including two which are listed under Annex I of the Birds Directive - Peregrine and Chough. The Chough population, with 13 breeding pairs, is one of the largest concentrations in this region. Bird populations of Fulmar, Great Black-backed Gull, Lesser Black backed Gull, Herring Gull, Kittiwake, Shag, Black Guillemot and Cormorants were also recorded in this site (NPWS, 2014d).

This site also includes a very rare plant, Hart's Saxifrage (*Saxifraga hartii*), which is considered endemic in Ireland, only occurring in the Aran Island.

The site is of conservation interest as it supports a number of habitats which are listed on Annex I of the Habitats Directive, as well as bird species under Annex I of the Birds Directive. In addition, it provides the only known location for an endemic plant (NPWS, 2014d).

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

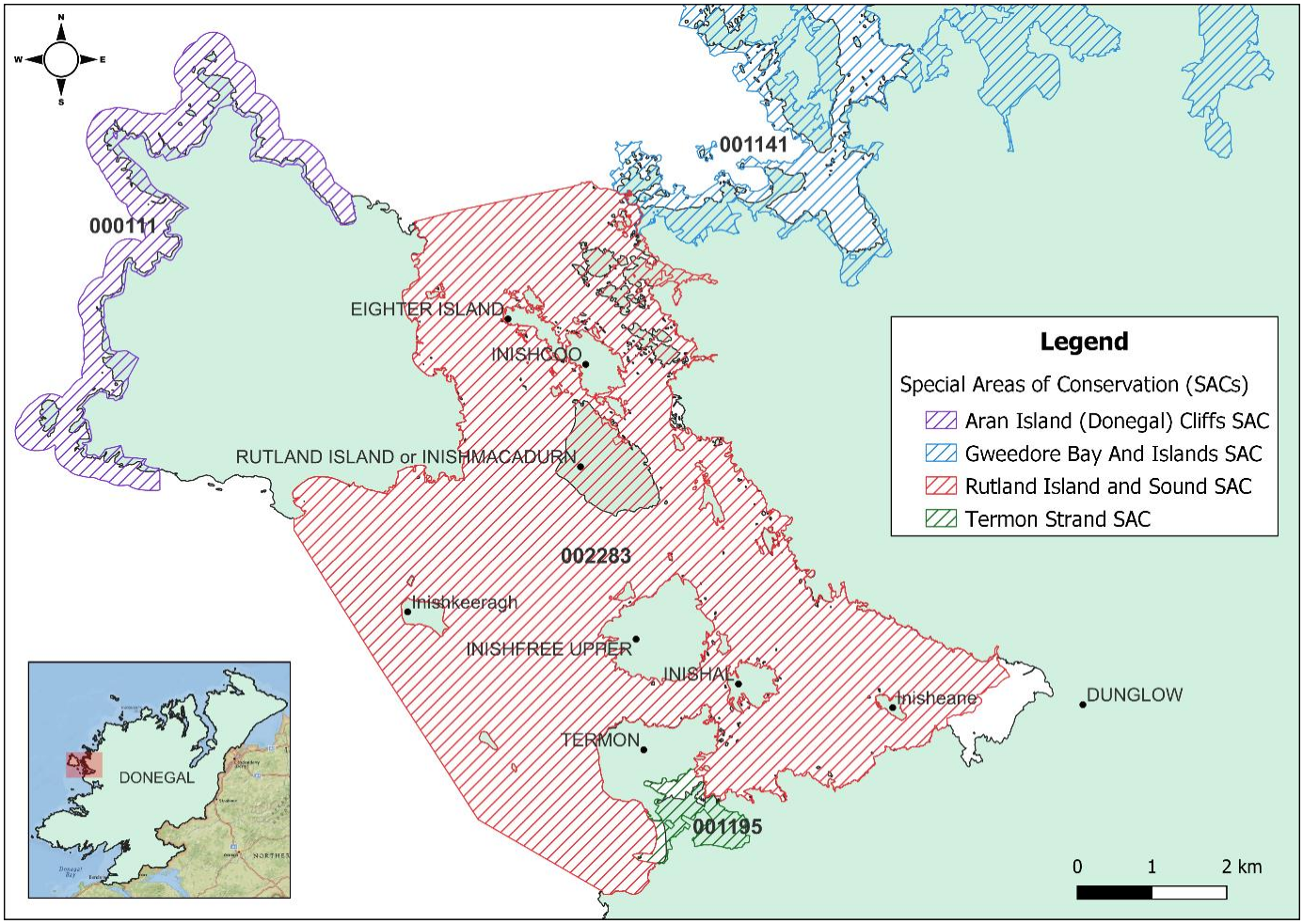

Figure 2-3: SACs located in the Proposed Project area, Co. Donegal.

2.2.2. Special Protection Areas (SPAs)

There are two Special Protection Area sites located in the Proposed Project area:

- Illancrone and Inishkeeragh SPA (Site code: 004132) (around 1.1 km southwest of the Proposed Project area)
- West Donegal Coast SPA (Site code: 004230) (around 7.5 km northeast of the Proposed Project area).

Illancrone and Inishkeeragh SPA (004132)

Illancrone and Inishkeeragh are two marine islands situated 8 to 9 km west of the town of Dungloe and south of Aranmore Island, Co. Donegal. The site is designated for the following SCIs:

- Barnacle Goose (*Branta leucopsis*) [A045]
- Common Tern (*Sterna hirundo*) [A193]

- Arctic Tern (*Sterna paradisaea*) [A194]
- Little Tern (*Sterna albifrons*) [A195]

This site is also located within the Rutland Island and Sound SAC. Illancrone is comprised of areas of rock, shingle and grassland while, Inishkeeragh is medium-sized, low-lying island surrounded by extensive intertidal rocks with dry grassland grazed by sheep. Both islands are particularly important for breeding of seabird species, such as Common Tern (*Sterna hirundo*), Little tern (*Sternula albifrons*) and Sandwich Tern (*Sterna sandvicensis*). In Illancrone, the Artic Tern (*Sterna paradisaea*) has been recorded as the largest known nesting colony for this species in Co. Donegal. Other seabird species recorded in this site are the Common Gull (*Larus canus*), Herring Gull (*Larus argentatus*), Lesser Black-backed Gull (*Larus fuscus*) and Roseate Tern (*Sterna dougallii*) (NPWS, 2009).

This site also supports the Barnacle Goose (*Branta leucopsis*) flock which populates the islands for feeding over the winter (NPWS, 2009).

This site is of considerable conservation significance for the Barnacle Goose population and colonies of breeding seabirds, many of them listed in Annex I of the Birds Directive (NPWS, 2009).

West Donegal Coast SPA (004230)

The West Donegal Coast SPA is comprised of a series of small to moderate-sized islands between 700 m and 3.5 km off the northwest coast of Co. Donegal. The site is designated for the following SCIs:

- Fulmar (*Fulmarus glacialis*) [A009]
- Cormorant (*Phalacrocorax carbo*) [A017]
- Shag (*Phalacrocorax aristotelis*) [A018]
- Peregrine (*Falco peregrinus*) [A103]
- Herring Gull (Larus argentatus) [A184]
- Kittiwake (*Rissa tridactyla*) [A188]
- Razorbill (*Alca torda*) [A200]
- Chough (*Pyrrhocorax pyrrhocorax*) [A346]

This 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 high-water mark forms the seaward boundary, except at Tormore Island where the adjacent sea area to a distance of 500 m from the cliff base is included. Most of the site is underlain by granite and quartzite,

though various other, particularly metamorphic, rock types also occur; rocks of Carboniferous age are found at Muckros Head (NPWS, 2015).

The predominant habitat of this site is vegetated sea cliffs, which occur along its length and support a good variety of plant species typical of the habitat as well as some rarities. The cliff tops support heath, blanket bog or coastal grassland. The northern section of the site includes several areas of machair. Apart from the sea cliffs and machair, the site includes areas of dry heath, wet heath, blanket bog, upland acid grassland, dense Bracken (*Pteridium aquilinum*), scrub, semi-improved and improved pasture grassland, fixed and mobile dune grassland, freshwater marsh, streams, oligotrophic lakes, bedrock shores and islets (NPWS, 2015).

This site also includes a breeding population of Chough (*Pyrrhocorax pyrrhocorax*), listed in the Annex I of the Birds Directive and in the Red Data Book species. Most concentrations of breeding pairs occur on the Glencolumbkille Peninsula, from Killybegs in the south to Loughros Beg Bay in the north and on Aran Island (NPWS, 2015).

A number of bird species were recorded in this site such as, Fulmar, Cormorant, Shag, Herring Gull, Kittiwake, Razorbill, Black Guillemot (*Cepphus grille*), Guillemot (*Uria aalge*), Great Black-backed Gull (*Larus marinus*), Lesser Black-backed Gull (*Larus fuscus*) and Puffins (*Fratercula arctica*). Small groups of Barnacle Goose (*Branta leucopsis*) were seen occasionally graze on the sward on top of the stack. Twite (*Carduelis flavirostris*) and Ring Ouzel (*Turdus torquatus*), both Red-listed species are also known to occur within the site (NPWS, 2015).

This SPA is of important conservation significance due to the presence of nationally breeding populations of bird species.

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

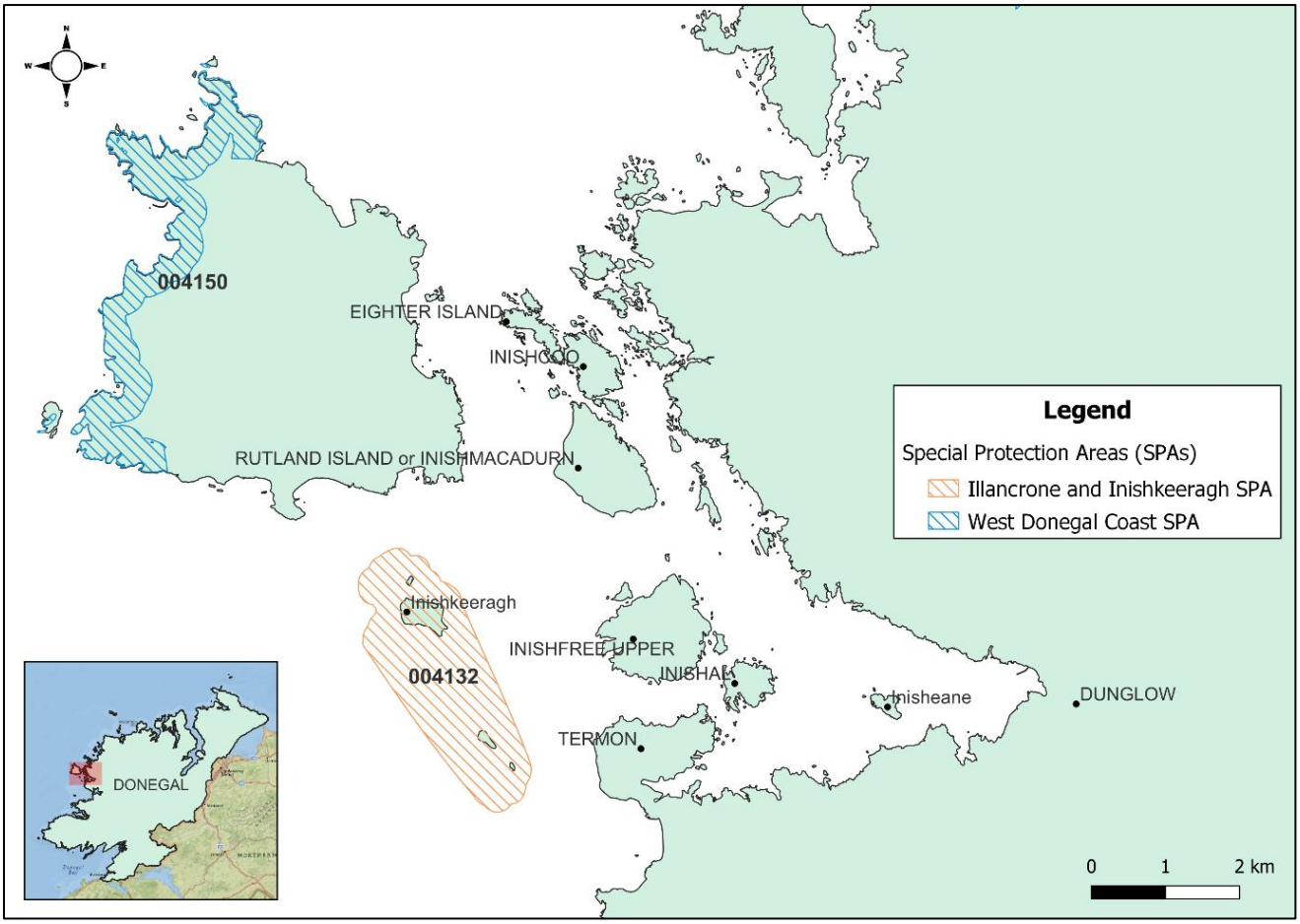

Figure 2-4: SPAs located in the Proposed Project area, Co. Donegal.

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 activity, 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 activities to foraging and breeding areas, and potential changes in species behaviour, potential hydrological connectivity between the proposed activities 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.

Disturbance to life cycle due to human, boat and vehicular traffic

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 activities (**Section 2.3.2**) to conservation features of European sites.

The screening exercise considers the potential for the proposed activities 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 is one European site within the Proposed Project area, the Rutland Island and Sound SAC (002283) which includes the whole harvesting area in the Proposed Project. The QIs and respective conservation objectives are listed in **Table 2.1**, alongside 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) of SACs within the harvesting area with respective screening assessment. Potential significant effects to the QIs are highlighted in bold.

Rutland Island and Sound SAC (002283)				
QIs (*=Priority)	**Ecological Group**	**Conservation Objective**	**Impact Mechanism**	**Source-Pathway-Receptor Assessment**
Coastal Lagoons* [1150]	Annex I marine/coastal habitat	Maintain the favourable conservation condition	1. Seabed habitat loss 2. Vessel collision risk and noise disturbance 3. Loss of prey biomass 4. Physical disturbance 5. Disturbance to Life Cycle (text added below)	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.
Large Shallow Inlets and Bays [1160]				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 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**,** given the density of intertidal reefs the low rate of harvesting and the sustainable approach to the harvesting activity, no significant effects will be experienced to this QI. The QIs and impact mechanism combinations are screened out of further assessment.

Annual Vegetation of Drift Lines [1210]	Annex I coastal habitat			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.
Embryonic Shifting Dunes [2110]				
Marram Dunes (White Dunes) [2120]				
Fixed Dunes (Grey Dunes)* [2130]				
Humid Dune Slacks [2190]				
Common (Harbour) Seal (*Phoca vitulina*) [1365]	Annex II marine species			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 the presence of cutters may disturb this QI if in the harvesting area, the presence of one cutter is unlikely to have a significant effect on this species. Additionally, the increase of slow vessels 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 are screened in for further assessment (see added text below for reasoning).

*

***QI** - Common (Harbour) Seal (Phoca vitulina) [1365] (Annex II marine species)*

***Conservation Objective:** Maintain the favourable conservation condition*

***Impact Mechanism**: Disturbance to life cycle.*

Source-Pathway-Receptor Assessment

Seals are vulnerable to disturbance during periods in which time is spent ashore or in shallow waters, by individuals or groups of animals. Seals may exhibit increased stress levels and altered behaviours in response to noise and close proximity to humans. This can affect their ability to rest, nurse pups, and engage in social behaviours. Seals may become more vigilant and spend less time resting or foraging, which can impact their overall health and energy balance. As the Rutland Island and Sound SAC is used annually as breeding sites for harbour seal, such habitats are critical to the maintenance of the species within the site and disturbance should be avoided especially within and leading up to the breeding season. Therefore, seal species, Grey and Harbour seals, will be considered for the implementation of appropriate management measures to negate potential impacts incurred from harvesting activities.

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 with respective screening assessment. Potential significant effects to the QIs are highlighted in bold.

Gweedore Bay and Islands SAC (001141)				
QIs and SCIs (*=Priority)	**Ecological Group**	**Conservation Objective**	**Impact Mechanism**	**Source-Pathway-Receptor Assessment**
Coastal Lagoons* [1150]	Annex I marine/coastal habitat	Restore the favourable conservation condition	1. Seabed habitat loss 2. Vessel collision risk and noise disturbance 3. Loss of prey biomass 4. Physical disturbance	The QIs are located outside of 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.
Reefs [1170]		To maintain the favourable conservation condition		
Perennial Vegetation of Stony Banks [1220]	Annex I coastal/terrestrial habitat			
Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]		Not defined		
Mediterranean Salt Meadows [1410]		Maintain the favourable conservation condition		
Embryonic Shifting Dunes [2110]				
Marram Dunes (White Dunes) [2120]				
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]				
Machairs* [21A0]		Restore the favourable conservation condition		
Oligotrophic to Mesotrophic Standing Waters [3130]		Maintain the favourable conservation condition		
Dry Heath [4030]	Annex I terrestrial habitat			
Alpine and Subalpine Heaths [4060]				
Juniper Scrub [5130]		Restore the favourable conservation condition		
Marsh Fritillary [1065]	Annex II terrestrial invertebrate species	Not defined		
Otter (*Lutra lutra*) [1355]	Annex II marine species	Maintain 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 the presence of cutters may disturb this QI if in the harvesting area, the presence of one cutter is unlikely to have a significant effect on this species. Additionally, the increase of slow vessels 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. impact on this species.

Petalwort (*Petalophyllum ralfsii*) [1395]	Annex II plant species			The QIs are located outside of 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			
Termon Strand SAC (001195)				
Coastal Lagoons* [1150]	Annex I marine/coastal habitat	Maintain the favourable conservation condition	1. Seabed habitat loss 3. Loss of prey biomass	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.
Aran Island (Donegal) Cliffs SAC (000111)				
Vegetated Sea Cliffs [1230]	Annex I coastal habitat	Maintain the favourable conservation condition	1. Seabed habitat loss 3. Loss of prey biomass	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.
Dry Heath [4030]		Restore the favourable conservation condition		
Alpine and Subalpine Heaths [4060]		Maintain the favourable conservation condition		
Calcareous Rocky Slopes [8210]	Annex I terrestrial habitat			
Siliceous Rocky Slopes [8220]				
Sea Caves [8330]	Annex I marine habitat			

Illancrone and Inishkeeragh SPA (004132)				
Barnacle Goose (*Branta leucopsis*) [A045]	Annex I bird species	Maintain or restore favourable conservation condition	4. Physical disturbance	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.
Common Tern (*Sterna hirundo*) [A193]				The SCIs are located outside of the harvesting area; 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.
Arctic Tern (*Sterna paradisaea*) [A194]				
Little Tern (*Sterna albifrons*) [A195]				
West Donegal Coast SPA (004150)				
Fulmar (*Fulmarus glacialis*) [A009]	Annex I bird species	Maintain or restore favourable conservation condition	4. Physical disturbance	The SCIs are located outside of the harvesting area; 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.
Cormorant (*Phalacrocorax carbo*) [A017]				
Shag (*Phalacrocorax aristotelis*) [A018]				
Peregrine (*Falco peregrinus*) [A103]				
Herring Gull (*Larus argentatus*) [A184]				
Kittiwake (*Rissa tridactyla*) [A188]				
Razorbill (*Alca torda*) [A200]				
Chough (*Pyrrhocorax pyrrhocorax*) [A346]				

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 development 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)*

Dungloe Bay is divided by parts of sheltered areas from certain wind directions by Arranmore Island and other smaller islands such as Rutland, Inishfree and Inishal. The other part of the bay is open to westerly as well as south westerly gales, where water depths are too shallow to allow finfish farming

to be carried out. Dungloe Bay encompasses a variety of licensed aquaculture activities, which can be seen in **Figure 2-5**. The activities that may pose a risk of acting in-combination with the Proposed Project are listed in **Table 2.3**.

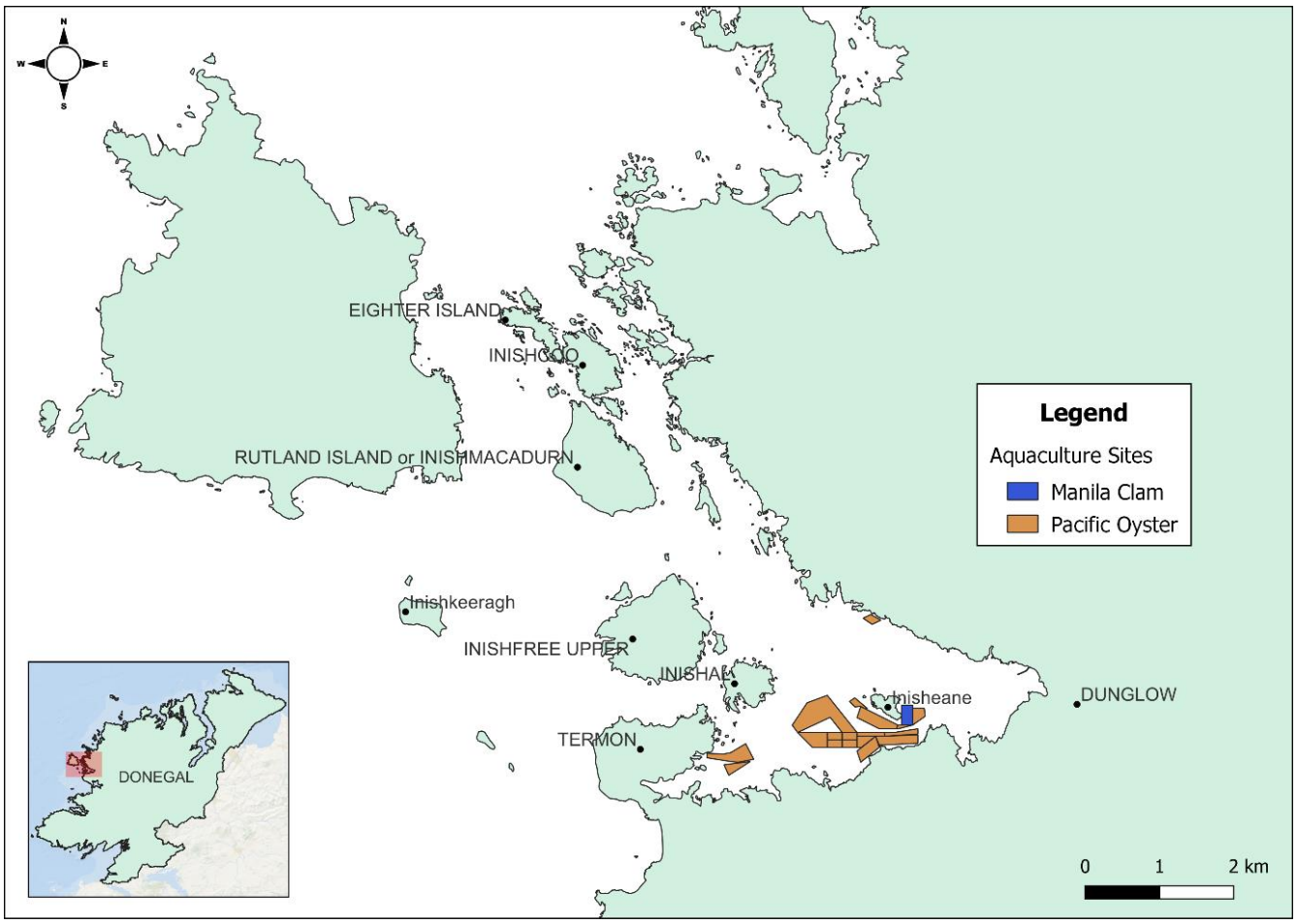

Figure 2-5: Location of aquaculture activities in the harvesting area of the Proposed Project.

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
T12/287A	Dungloe Bay	Licensed	Shellfish	Pacific Oyster
T12/287				
T12/303A				
T12/316A				
T12/315A				
T12/205C				Manila Clam and Pacific Oyster
T12/205B				Pacific Oyster
T12/205A				
T12/304A				

T12/302A				
T12/302B				
T12/399A				
T12/399B				
T12/422A				
T12/423A				
T12/424A				
T12/486A				
T12/506A				
T12/493A				

The only types of aquaculture sites located in this area are oyster and clam productions. These sites are located south and southwest of Inisheane, east of Termon, along the southern shore and in inner Dungloe Bay where shelter is maximum. Locations of oyster and clam 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, there is potential for significant effects on the conservation features of the Rutland Island and Sound SAC. No significant effects were identified for the Gweedore Bay and Islands SAC, the Termon Strand SAC, the Aran Island (Donegal) Cliffs SAC, the Illancrone and Inishkeeragh SPA and the West Donegal Coast 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 8,000 wet tonnes of *Ascophyllum nodosum* from the harvestable area in Dungloe 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. 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.
European Site(s)	
Brief description of the relevant European site(s)	The European site within the harvesting area of the Proposed Project site is: • Rutland Island and Sound SAC 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): • Gweedore Bay and Islands SAC (Site code: 001141) • Termon Strand SAC (Site code: 001195) • Aran Island (Donegal) Cliffs SAC (Site code: 000111) • Illancrone and Inishkeeragh SPA (Site code: 004132) • West Donegal Coast SPA (Site code: 004230) The QIs 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. 5. **Disturbance to life cycle** of harbour seals (QIs of the Rutland Island and Sound SAC) from the presence of humans (i.e. the harvesters) in the intertidal zone may cause seals to alter their resting and foraging behaviours

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 Dungloe Bay (see **Section 2.3.4)** and it is concluded that there is potential for significant effects caused by cumulative or in-combination effects. **Likely direct impacts to the QI harbour seals of Rutland Island and Sound SAC include disturbance to life cycle.** These impacts may occur alone or in-combination with the proposed activities. Harbour seals are designated QI of the SAC as important breeding, moulting and resting sites. Disturbances from human presence can cause significant alteration to habitat use, leading to displacement of seals from important breeding and moulting sites within the SAC. Repeated human presence can cause seals to become increasingly wary of using these areas, leading to habitat abandonment of traditional breeding sites over time, leading to reduced use of these areas for pupping. Displacement can lead to lower breeding success rates, as alternative sites may not provide the same level of safety and environmental conditions needed for successful pupping. Furthermore, continuous or frequent disturbances may lead seals to abandon traditional moulting sites altogether, potentially exposing the seals to harsher conditions, affecting their health during the moulting process as a result of thermal stress due to displacement. This can have long-term implications for the population if suitable alternative sites are not available or are already occupied.
Distance from the Natura 2000 site or key interests of the site;	The Proposed Project area of harvesting falls within the Rutland Island and Sound SAC, while the other SACs and SPAs included are at the respective distances of the Proposed Project area: • Gweedore Bay and Islands SAC (around 330 m northeast) • Termon Strand SAC (around 20 m west) • Aran Island (Donegal) Cliffs SAC (around 7.5km) • Illancrone and Inishkeeragh SPA (around 1.1 km southwest) • West Donegal Coast SPA (around 9.7 km northeast).
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 potential 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 • Long-term habitat abandonment
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 potential for significant effects caused by the Proposed Project in isolation or in combination with other plans and projects. Hand harvesting seaweed involves manual collection of seaweed along the intertidal zones and potential disturbances include human presence and habitat modification as a result. Aquaculture sites include activities such as shellfish farming, fish farming, and seaweed cultivation. Potential disturbances include human presence, boat traffic and habitat alteration. Disturbance to life cycle of harbour seals (QIs of the Rutland Island and Sound SAC) from the presence of humans (i.e. the harvesters) in the intertidal zone may cause seals to alter their resting and foraging behaviours. These species rely on the coastal and marine habitats within the SAC for critical aspects of their life cycle, including breeding, moulting, resting, and foraging. Repeated human presence can cause seals to become increasingly wary of using these areas, leading to habitat abandonment of traditional breeding sites over time, leading to reduced use of these areas for pupping. Displacement during moulting season from these sites can expose them to harsher conditions, affecting their health during the moulting process as a result of thermal stress due to displacement. Any adverse impacts on their populations could undermine the conservation objectives of the SAC.
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 potential 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.	**Disturbance to life cycle including habitat abandonment**: Likelihood: High, due to the overlapping spatial and temporal occurrence of these activities, including in-combination effects from other activities including aquaculture, with recorded breeding, moulting and resting locations within the SAC. Magnitude: Potentially significant, as seals may experience more frequent disturbances, leading to increased stress, energy expenditure and habitat abandonment.”

2.5. Screening Outcome Conclusion

Following a desk based screening assessment of the potential impacts of hand harvesting seaweed within the Rutland Island and Sound SAC, it has been determined that there is potential for likely significant effects, both alone and in-combination with other activities (i.e. aquaculture), on the life cycle of harbour seals, which are qualifying interests of the SAC.

The physical disturbance of human presence during hand harvesting of seaweed, alone and in combination with disturbance from other activities such as aquaculture in the area has the potential to alter use of habitats, leading to the displacement of seals from breeding and moulting sites. Such disturbances can pose a risk to the conservation objectives of the SAC.

Given the potential for significant impacts, a Stage 2 Natura Impact Statement (NIS) may be required**.**

3. References

Cullinane, J.P. (1984). A quantitative survey of the harvestable intertidal seaweed on the West coast of Ireland. *Hydrobiologia, 116*, 338-341.

DEHLG. (2009). Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (Revised February 2010).

Guiry, M.D., (1997). Went Memorial Lecture 1996. Research and development of a sustainable Irish seaweed industry. *Occasional Papers in Irish Science and Technology Royal Dublin Society*, 14,1-11.

Guiry, M.D., & Morrison, L. (2013). The sustainable harvesting of Ascophyllum nodosum (*Fucaceae, Phaeophyceae*) in Ireland, with notes on the collection and use of some other brown algae. *Journal of Applied Phycology, 25*, 1823-1830.

Hession, C., Guiry, M. D., McGarvey, S. & Joyce, D. (1998). Mapping and Assessment of the Seaweed Resources (*Ascophyllum nodosum, Laminaria* spp.) off the West Coast of Ireland". *Marine Resource Series*, 5, 1-74.

Kelly, L., Collier, L., Costello, M.J., Diver, M., McGarvey, S., Kraan, S., Morrisey, J., Guiry, M.D. (2001). Impact assessment of hand and mechanical harvesting of *Ascophyllum nodosum* on regeneration and biodiversity. *Marine Resource Series*, 19, 1–51.

MERC. (2008). Surveys of sensitive sublittoral benthic communities in Mullet/Blacksod Bay Complex SAC, Rutland Island and Sound SAC, Mulroy Bay SAC.

NPWS. (2009). Illancrone and Inishkeeragh SPA. Site Synopsis.

NPWS. (2013a). Conservation Objectives: Rutland Island and Sound SAC 002283. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS. (2013b). Conservation Objectives: Rutland Island and Sound SAC 002283. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS. (2014a). Rutland Island and Sound SAC. Site Synopsis.

NPWS. (2014b). Gweedore Bay and Islands SAC. Site Synopsis.

NPWS. (2014c). Termon Strand SAC. Site Synopsis.

NPWS. (2014d). Aran Islands (Donegal Cliffs SAC. Site Synopsis.

NPWS. (2015a). West Donegal Coast SPA. Site Synopsis.

NPWS. (2015b). Conservation Objectives: Gweedore Bay and Islands SAC 001141. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS. (2016a). Conservation Objectives: Aran Island (Donegal) Cliffs SAC 000111. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

NPWS. (2016b). Conservation Objectives: Termon Strand SAC 001195. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs

NPWS. (2022a). Conservation objectives for Illancrone and Inishkeeragh SPA [004132]. Generic Version 9.0. Department of Housing, Local Government and Heritage.

NPWS. (2022b). Conservation objectives for West Donegal Coast SPA [004150]. Generic Version 9.0. Department of Housing, Local Government and Heritage.

OPR. (2021). Appropriate Assessment Screening for Development Management. Practice Note PN01. Office of the Planning Regulator.

Stengel, D.B. & Dring, M.J. (1997). Morphology and *in situ* growth rates of plants of *Ascophyllum nodosum* (Phaeophyta) from different shore levels and responses of plants to vertical transplantation. *European Journal of Phycology*, 32, 193-202.