Natura Impact Statement
For the Hand-Harvesting of *Ascophyllum nodosum*
in
Rutland Island and Sound candidate Special Area of Conservation,
Co. Donegal

Produced by

AQUAFACT International Services Ltd

On behalf of

Oilean Glas Teo.

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1. Introduction

1.1. Requirement for an Article 6 Assessment

Oilean Glas Teo (OGT) is applying to the Department of the Environment, Community and Local Government for a Foreshore Licence for the hand-harvesting of the seaweed *Ascophyllum nodosum* from the intertidal shoreline in Rutland Island and Sound, County Donegal. Due to Rutland Island and Sound being a candidate Special Area of Conservation (cSAC; Site Code IE002283) and the area of harvesting also being close to a number of other Natura 2000 sites (see Table 5.1), it is regarded as necessary that the proposal should have due regard to Article 6 (3) of the EU Habitats Directive[1] which states:

> Article 6 (3): *Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the [Natura 2000] site in view of the [Natura 2000] site's conservation objectives*.

This is transposed into national legislation by Regulation 31 of the European Communities (Natural Habitats) Regulations 1997.

1.2. The Aim of this Report

This Natura Impact Statement (NIS) has been prepared in accordance with the current guidance (DEHLG, 2009, Revised February 2010) and provides an assessment of the ecological impacts of the proposed seaweed harvesting operation. EPA Advice Notes on Current Practice (CAAS, 2003); EPA 'Guidelines on the Information to be contained in Environmental Impact Statements' (CAAS, 2002); and the Institute of Ecology and Environmental Management's Guidelines for Ecological Impact Assessment (IEEM, 2006).

The NIS provides the information required in order to establish whether or not the seaweed harvesting is likely to have a significant impact on the surrounding Natura 2000 sites in the context of their conservation objectives and specifically on the habitats and species for which the site has been designated.

[1] Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.

By taking the ecological impact assessment in a step by step manner in relation to the habitats and species of the Natura 2000 sites, together with their conservation objectives, this report seeks to inform the screening process required as the first stage of the process pursuant to Article 6.3 of the EU Habitats Directive and also to provide full and detailed information as required for the second stage, that of Appropriate Assessment, should the competent authority decide that such an assessment is required.

The report is laid out as follows:
Section 2 outlines the Appropriate Assessment procedure. Section 3 provides a description of the seaweed harvesting process, Section 4 is the Screening Assessment, Section 5 details the ecological characteristics of the Natura 2000 site and Section 6 details the baseline ecological environment. This is followed by an Assessment of the Likely Effects, Mitigation and Residual impacts in Sections 7, 8 and 9 respectively. Section 10 is the conclusion.

1.3. Background

There is a tradition of hand-harvesting of seaweeds in Donegal. This has expanded into commercial exploitation of the abundant seaweed resources of the area. 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 was all harvested by hand using traditional sickles or knives, forks, ropes and nets at low tide. The weed would be cut down, leaving about a hand's length 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 one tone in weight, thus facilitating easier transportation to a suitable pier for collection by lorry. A report by White & Costelloe (1999) states that there were no accurate figures for the numbers of cutters but estimates the figure for Co. Donegal to be approximately 90 full-time and 250 part-time at the time. The factory in Donegal closed down in 2001. Arramara Teó still runs a seaweed processing factory in Kilkieran, Co. Galway.

OGT is seeking to continue this tradition by applying for a Foreshore Licence from the Department of the Environment, Community and Local Government to hand-harvest naturally occurring *Ascophyllum nodosum* from the intertidal shoreline of the Rutland Island and Sound cSAC. This NIS focuses on the impacts that this seaweed harvesting will have on the qualifying interests of the Natura 2000 sites in and around the harvesting area.

2. Appropriate Assessment Process

2.1. Introduction

There is a requirement, under Article 6(3) of the EU Habitats Directive (Directive 92/43/EEC), to carry out an Appropriate Assessment. The first step of the Appropriate Assessment process is to establish whether, in relation to a particular plan or project, Appropriate Assessment is required. Article 6(3) states:

> *'Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.'*

If the Appropriate Assessment determines that a plan of project may adversely affect the integrity of a Natura 2000 site, then Article 6 (4) may come into play. Article 6 (4) states that:

> *'If, in spite of a negative assessment of the implications for the [Natura 2000] site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted'*.

This NIS has been prepared in accordance with the following guidance documents:

- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DEHLG 2009, Revised February 2010)
- EU Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC (EC, 2007);
- Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (EC, 2002); and
- Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC,

2000).

Should a decision be reached to the effect that it cannot be said with sufficient certainty that the proposed activity will not have any significant effect on the Natura 2000 sites, then, as is stated above, it is necessary and appropriate to carry out an appropriate assessment of the implications of the activity for the sites in view of their conservation objectives.

The guidance for Appropriate Assessment (DEHLG, 2009, revised February 2010) states:

> *"AA is an impact assessment process that fits within the decision-making framework and tests of Articles 6(3) and 6(4) and, for the purposes of this guidance, it comprises two main elements. Firstly a* ***Natura Impact Statement – i.e. a statement of the likely and possible impacts of the plan or project on a Natura 2000 site (abbreviated in the following guidance to "NIS")*** *must be prepared. This comprises a comprehensive ecological impact assessment of a plan or project; it examines the direct and indirect impacts that the plan or project might have on its own or in combination with other plans and projects, on one or more Natura 2000 sites in view of the sites' conservation objectives. Secondly, the competent authority carries out the AA, based on the NIS and any other information it may consider necessary. The AA process encompasses all of the processes covered by Article 6(3) of the Habitats Directive, i.e. the screening process, the NIS, the AA by the competent authority, and the record of decisions made by the competent authority at each stage of the process, up to the point at which Article 6(4) may come into play following a determination that a plan or project may adversely affect the integrity of a Natura 2000 site".*

It is the responsibility of the competent authority, in this instance the Department of the Environment, Community and local Government, to make a decision as to whether or not the seaweed harvesting (both alone and in combination with two other proposed farms) should be permitted, taking into consideration any potential impact upon the Natura 2000 sites in question.

2.2. Stages

It is stated within the EU guidelines that "where, without any detailed assessment at the screening stage, it can be assumed (because of the size or scale of the project or the characteristics of the Natura 2000 site) that significant effects are likely, it will be sufficient to move directly to the appropriate assessment (Stage Two) rather than complete the screening assessments explained below."

The Commission's methodological guidance (EC, 2002) 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 2.1 below.

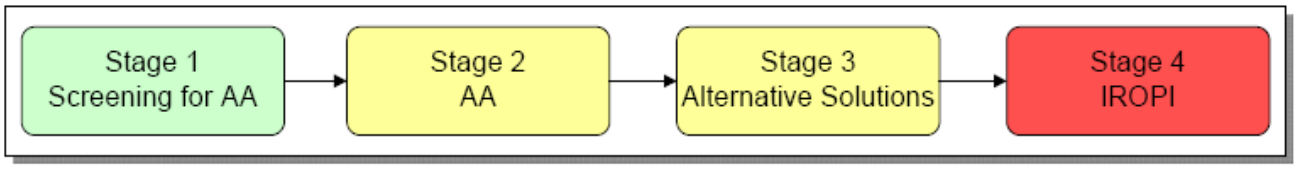

Figure 2.1: Stages in the AA process (Source: DEHLG, 2009).

2.2.1. Stage 1. Screening for Appropriate Assessment

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 the 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 Natura 2000 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 is needed in circumstances where the process ends at the screening stage on grounds of no impact.

2.2.2. Stage 2. Appropriate Assessment

This stage considers whether the plan or project, alone or in combination with other projects or plans, will have an adverse effect on the integrity of a Natura 2000 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**, i.e. the report of a targeted professional scientific examination of the plan or project and the relevant Natura 2000 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 4, or the plan or project should be abandoned. The AA is carried out by the

competent authority, and is supported by the NIS.

2.2.3. 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 Natura 2000 site. The process must return to Stage 2 as alternatives will require appropriate assessment in order to proceed. Demonstrating that all reasonable alternatives have been considered and assessed, and that the least damaging option has been selected, is necessary to progress to Stage 4.

2.2.4. Stage 4. Imperative Reasons of Overriding Public Interest (IROPI)/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 Natura 2000 site to proceed in cases where it has been established that no less damaging alternative solution exists.

The extra protection measures for Annex I priority habitats come into effect when making the IROPI case[2]. Compensatory measures must be proposed and assessed. The Commission must be informed of the compensatory measures. Compensatory measures must be practical, implementable, likely to succeed, proportionate and enforceable, and they must be approved by the Minister.

3. Description of Proposed Activity

Ascophyllum nodosum is a perennial brown intertidal seaweed *A. nodosum*, which occurs on mid to low intertidal rocky shores at a variety of exposures, except those most exposed to wave action (see Figure 3.2). It is considered the dominant seaweed species on most of the Irish intertidal coastline. 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 form the base of the plant (by asexual

[2] IROPI reasons that may be raised for sites hosting priority habitats are those relating to human health, public safety or beneficial consequences of primary importance to the environment. In the case of other IROPI, the opinion of the Commission is necessary and should be included in the AA

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-harvest s possible in 3-6 years.

OGT is planning to harvest up to 8,000t wet weight of *Ascophyllum nodosum* per annum 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 cSAC (see Figure 3.1). Guiry and Morrison (2013) note that between 8,000 – 28,000t of *A. nodosum* were harvested annually in Ireland between 1964 and 2013. They go on to note that estimate for the national biomass of this alga vary from 159,000t (± 45,000) by Cullinane (1984) down to 75,000t by Hession *et al* (1998). They comment that the large difference in estimates relates to different assessment methods employed but go on to state that "there are sufficient unharvested areas to satisfy any requirement for conservation.

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 cailleadh/caillaí) of approximately 1t, which are bound by nets (see Figure 3.2) and ropes and left on the intertidal shoreline. These caillaí float at high water and are towed usually by small boat to a suitable pier for collection by a lorry with a crane. They are lifted directly from the sea shore by the crane onto the lorry and driven away.

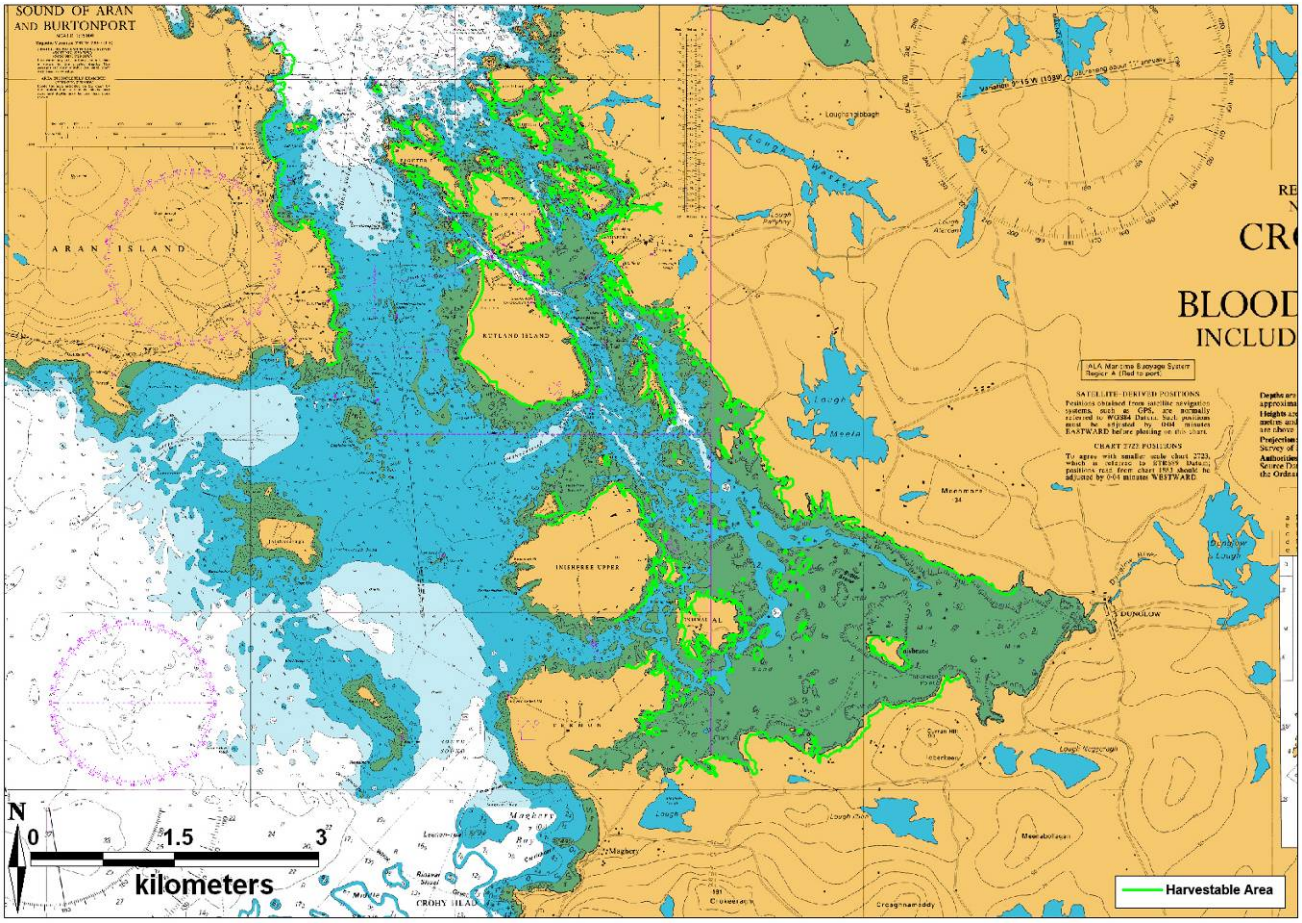

Figure 3.1: Location of the harvestable area

Figure 3.2: *Ascophyllum nodosum* dominated rocky intertidal zone and harvested *A. nodosum* (cailleadh in Donegal Irish) bundled in nets.

4. Screening for Appropriate Assessment

This screening stage serves to identify only those Natura 2000 sites in the vicinity of the seaweed harvesting areas that have qualifying interests which may be impacted upon by the proposed activity. Figures 4.1 and 4.2 show the cSACs and SPAs within 15km of the harvesting area respectively and Table 4.1 details the qualifying interests of each of the Natura 2000 sites, the potential impact (if any) upon them and the screening assessment for each qualifying interest. Those sites or individual qualifying interests that are screened out at this stage (primarily as a result of being too great a distance away and having different habitat requirements) are not assessed further in this Natura Impact Statement. Those sites / qualifying interests that are screened in for further Appropriate Assessment are highlighted in the Table 4.1.

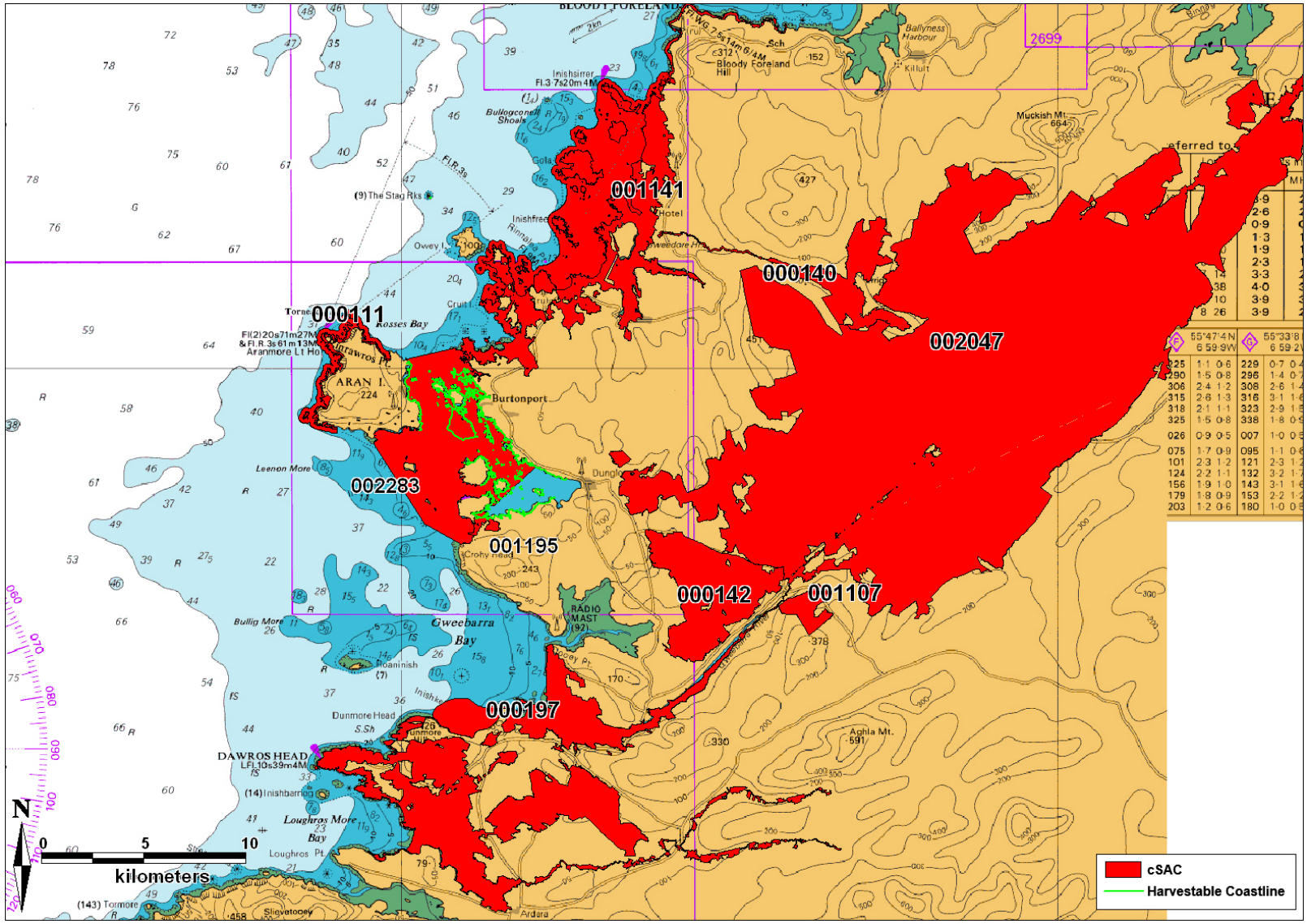

Figure 4.1: Location of the cSACs within 15km of the harvesting area.

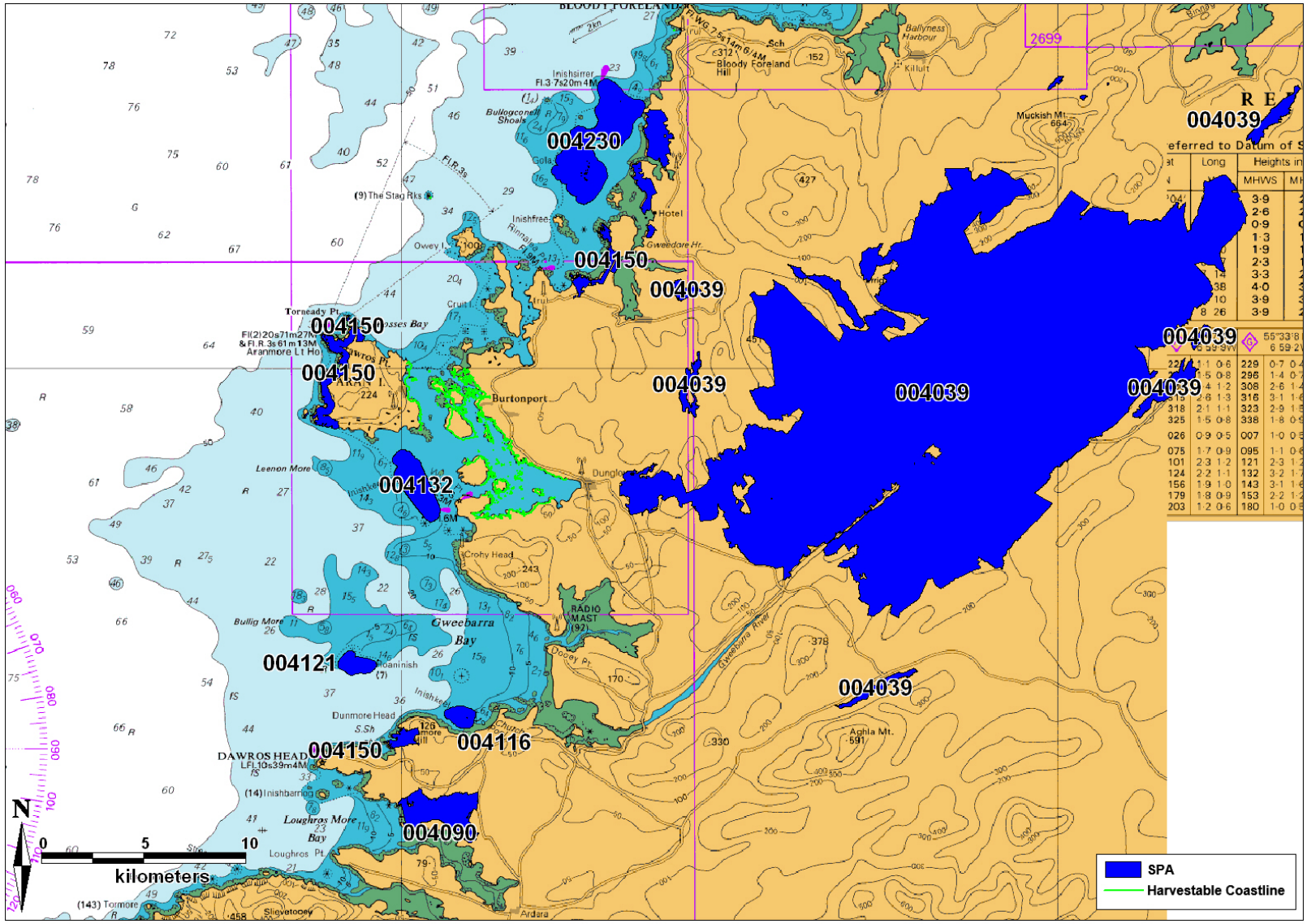

Figure 4.2: Location of the SPAs within 15km of the harvesting area.

Table 4.1: Natura 2000 sites, Qualifying Interests, Potential Impacts and Screening Assessment.

Natura 2000 Site	Site Code	Qualifying Interests	Potential Impacts	Screening Assessment
Rutland Island & Sound cSAC	IE002283	1150 Coastal Lagoons	Potential Interaction	Screened In for AA
		1160 Large shallow inlet and bay	Potential Interaction	Screened In for AA
		1170 Reefs	Potential Interaction	Screened In for AA
		1210 Annual vegetation of drift lines	None – not intertidal	Screened Out
		1365 Common seal *Phoca vitulina*	Potential Interaction	Screened In for AA
		2110 Embryonic shifting dunes	None – not intertidal	Screened Out
		2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)	None – not intertidal	Screened Out
		2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)	None – not intertidal	Screened Out
		2190 Humid dune slacks	None – not intertidal	Screened Out
Illancrone and Inishkeeragh SPA	IE004132	A193 Common Tern (*Sterna hirundo*)	Potential Interaction	Screened In for AA
		A194 Arctic Tern (*Sterna paradisaea*)	Potential Interaction	Screened In for AA
		A195 Little Tern (*Sterna albifrons*)	Potential Interaction	Screened In for AA
		A396 Barnacle Goose (*Branta leucopsis*)	Potential Interaction	Screened In for AA
Aran Island (Donegal) Cliffs cSAC	IE000111	1230 Vegetated sea cliffs of the Atlantic and Baltic coasts	None – due to distance and habitat	Screened Out
		4030 European dry heaths	None – due to distance and habitat	Screened Out
		4060 Alpine and boreal heaths	None – due to distance and habitat	Screened Out
		8210 Calcareous rocky slopes with chasmophytic vegetation	None – due to distance and habitat	Screened Out
		8220 Siliceous rocky slopes with chasmophytic vegetation	None – due to distance and habitat	Screened Out
West Donegal Coast SPA	IE004150	A009 Fulmar (*Fulmarus glacialis*)	None – due to distance and habit	Screened Out
		A017 Cormorant (*Phalacrocorax carbo*)	None – due to distance and habit	Screened Out
		A018 Shag (*Phalacrocorax aristotelis*)	None – due to distance and habit	Screened Out
		A103 Peregrine (*Falco peregrinus*)	None – due to distance and habit	Screened Out
		A184 Herring Gull (*Larus argentatus*)	None – due to distance and habit	Screened Out
		A188 Kittiwake (*Rissa tridactyla*)	None – due to distance and habit	Screened Out
		A200 Razorbill (*Alca torda*)	None – due to distance and habit	Screened Out

Natura 2000 Site	Site Code	Qualifying Interests	Potential Impacts	Screening Assessment
		A346 Chough (*Pyrrhocorax pyrrhocorax*)	None – due to distance and habit	Screened Out
Termon Strand cSAC	IE001195	1150 Coastal lagoons	Potential Interaction	Screened In for AA
Gweedore Bay and Islands cSAC	IE001141	1150 Coastal lagoons	None – due to distance and habitat	Screened Out
		1170 Reefs	None – due to distance	Screened Out
		1220 Perennial vegetation of stony banks	None – due to distance and habitat	Screened Out
		1355 Otter (*Lutra lutra*)	Potential Interaction	Screened In for AA
		1395 Petalwort (*Petalophyllum ralfsii*)	None – due to distance and habitat	Screened Out
		1410 Mediterranean salt meadows (*Juncetalia maritimi*)	None – due to distance and habitat	Screened Out
		1833 Slender naiad (*Najas flexilis*)	None – due to distance and habitat	Screened Out
		2110 Embryonic shifting dunes	None – due to distance and habitat	Screened Out
		2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)	None – due to distance and habitat	Screened Out
		2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)	None – due to distance and habitat	Screened Out
		2140 Decalcified fixed dunes with *Empetrum nigrum*	None – due to distance and habitat	Screened Out
		2150 Atlantic decalcified fixed dunes (*Calluno-Ulicetea*)	None – due to distance and habitat	Screened Out
		2170 Dunes with *Salix repens* ssp.*argentea* (*Salix arenariae*)	None – due to distance and habitat	Screened Out
		2190 Humid dune slacks	None – due to distance and habitat	Screened Out
		21A0 Machair	None – due to distance and habitat	Screened Out
		3110 Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*)	None – due to distance and habitat	Screened Out
		4030 European dry heaths	None – due to distance and habitat	Screened Out
		4060 Alpine and Boreal heaths	None – due to distance and habitat	Screened Out
		5130 *Juniperus communis* formations on heaths or calcareous grasslands	None – due to distance and habitat	Screened Out
Roaninish SPA	IE004121	A184 Herring Gull (*Larus argentatus*)	None – due to distance and habitat	Screened Out
		A396 Barnacle Goose (*Branta leucopsis*)	Potential Interaction	Screened In for AA
West of Ardara/Maas Road cSAC	IE000197	1013 *Vertigo geyeri*	None – due to distance and habitat	Screened Out
		1029 Freshwater pearl mussel (*Margaritifera margaritifera*)	None – due to distance and habitat	Screened Out
		1065 Marsh fritillary (*Euphydryas aurinia*)	None – due to distance and habitat	Screened Out

Natura 2000 Site	Site Code	Qualifying Interests	Potential Impacts	Screening Assessment
		1106 Salmon (*Salmo salar*)	None – due to distance	Screened Out
		1130 Estuaries	None – due to distance and habitat	Screened Out
		1140 Mudflats and sandflats not covered by seawater at low tide	None – due to distance and habitat	Screened Out
		1160 Large shallow inlets and bays	None – due to distance and habitat	Screened Out
		1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	None – due to distance and habitat	Screened Out
		1355 Otter (*Lutra lutra*)	None – due to distance	Screened Out
		1365 Common seal (*Phoca vitulina*)	Potential Interaction	Screened In for AA
		1395 Petalwort (*Petalophyllum ralfsii*)	None – due to distance and habitat	Screened Out
		1410 Mediterranean salt meadows (*Juncetalia maritimi*)	None – due to distance and habitat	Screened Out
		1833 Slender naiad (Najas flexilis)	None – due to distance and habitat	Screened Out
		2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)	None – due to distance and habitat	Screened Out
		2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)	None – due to distance and habitat	Screened Out
		2140 Decalcified fixed dunes with *Empetrum nigrum*	None – due to distance and habitat	Screened Out
		2150 Atlantic decalcified fixed dunes (*Calluno-Ulicetea*)	None – due to distance and habitat	Screened Out
		2170 Dunes with *Salix repens* ssp.*argentea* (*Salix arenariae*)	None – due to distance and habitat	Screened Out
		2190 Humid dune slacks	None – due to distance and habitat	Screened Out
		21A0 Machairs	None – due to distance and habitat	Screened Out
		3110 Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*)	None – due to distance and habitat	Screened Out
		4010 Northern Atlantic wet heaths with *Erica tetralix*	None – due to distance and habitat	Screened Out
		4030 European dry heaths	None – due to distance and habitat	Screened Out
		4060 Alpine and Boreal heaths	None – due to distance and habitat	Screened Out
		5130 *Juniperus communis* formations on heaths or calcareous grasslands	None – due to distance and habitat	Screened Out
		6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco Brometalia*)(*important orchid sites)	None – due to distance and habitat	Screened Out
		6410 *Molinia* meadows on calcareous, peaty or clavey-silt-laden	None – due to distance and habitat	Screened Out

Natura 2000 Site	Site Code	Qualifying Interests	Potential Impacts	Screening Assessment
		soils (*Molinion caeruleae*)		
		6510 Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*)	None – due to distance and habitat	Screened Out
		7130 Blanket bog (*active only)	None – due to distance and habitat	Screened Out
		7150 Depressions on peat substrates of the *Rhynchosporion*	None – due to distance and habitat	Screened Out
		7230 Alkaline fens	None – due to distance and habitat	Screened Out
Inishkeel SPA	IE004116	A396 Barnacle Goose (*Branta leucopsis*)	None – due to distance	Screened Out
Sheskinmore Lough SPA	IE004090	A395 Greenland White-fronted Goose (*Anser albifrons flavirostris*)	None – due to distance	Screened Out
Cloghernagore Bog and Glenveagh National Park cSAC	IE002047	1029 Freshwater pearl mussel (*Margaritifera margaritifera*)	None – due to distance and habitat	Screened Out
		1106 Salmon (*Salmo salar*)	None – due to distance	Screened Out
		1355 Otter (*Lutra lutra*)	None – due to distance	Screened Out
		1421 Killarney fern (*Trichomanes speciosum*)	None – due to distance and habitat	Screened Out
		3110 Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*)	None – due to distance and habitat	Screened Out
		3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation	None – due to distance and habitat	Screened Out
		4010 Northern Atlantic wet heaths with *Erica tetralix*	None – due to distance and habitat	Screened Out
		4030 European dry heaths	None – due to distance and habitat	Screened Out
		4060 Alpine and Boreal heaths	None – due to distance and habitat	Screened Out
		6410 *Molinia* meadows on calcareous, peaty or clavey-silt-laden soils (*Molinion caeruleae*)	None – due to distance and habitat	Screened Out
		7130 Blanket bog (*active only)	None – due to distance and habitat	Screened Out
		7150 Depressions on peat substrates of the R*hynchosporion*	None – due to distance and habitat	Screened Out
		91A0 Old sessile oak woods with *Ilex* and *Blechnum* in British Isles	None – due to distance and habitat	Screened Out
Derryveagh and Glendowan Mountains SPA	IE004039	A001 Red-throated Diver (*Gavia stellata*)	None – distance too great and habitat	Screened Out
		A098 Merlin (*Falco columbarius*)	None – distance too great and habitat	Screened Out
		A103 Peregrine (*Falco peregrinus*)	None – distance too great and habitat	Screened Out
		A140 Golden Plover (*Pluvialis apricaria*)	None – distance too great and habitat	Screened Out
		A466 Dunlin (*Calidris alpina schinzii*)	None – distance too great and habitat	Screened Out

Natura 2000 Site	Site Code	Qualifying Interests	Potential Impacts	Screening Assessment
West Donegal Islands SPA	IE004230	A018 Shag (*Phalacrocorax aristotelis*)	None – distance too great and habitat	Screened Out
		A122 Corncrake (*Crex crex*)	None – distance too great and habitat	Screened Out
		A182 Common Gull (*Larus canus*)	None – distance too great and habitat	Screened Out
		A184 Herring Gull (*Larus argentatus*)	None – distance too great and habitat	Screened Out
		A396 Barnacle Goose (*Branta leucopsis*)	Potential Interaction	Screened in for AA
Gannivegil Bog cSAC	IE000142	3110 Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*)	None – due to distance and habitat	Screened Out
		4010 Northern Atlantic wet heaths with *Erica tetralix*	None – due to distance and habitat	Screened Out
		7130 Blanket bog (*active only)	None – due to distance and habitat	Screened Out
Coolvoy Bog cSAC	IE001107	7130 Blanket bog (*active only)	None – due to distance and habitat	Screened Out
Fawnboy Bog/Lough Nacung cSAC	IE000140	1029 Freshwater pearl mussel (*Margaritifera margaritifera*)	None – due to distance and habitat	Screened Out
		4010 Northern Atlantic wet heaths with *Erica tetralix*	None – due to distance and habitat	Screened Out
		7130 Blanket bog (*active only)	None – due to distance and habitat	Screened Out
		7150 Depressions on peat substrates of the *Rhynchosporion*	None – due to distance and habitat	Screened Out

5. Natura 2000 Sites

5.1. Designated Sites of Relevance in the Harvesting Area

Following the Screening Stage, the designated Natura 2000 sites of relevance to the proposed seaweed harvesting activities are the Rutland Island and Sound cSAC (IE002283) within which the harvesting will occur, Termon Strand cSAC (IE001195), Gweedore Bay and Islands cSAC (IE001141), Illancrone and Inishkerragh SPA (IE004132), West of Ardara/Mass Road cSAC (IE000197), Roaninish SPA and West Donegal Islands SPA (IE004230).

Table 5.1 lists these Natura 2000 sites and their distances from the seaweed harvesting area and Figure 5.1 shows their locations in relation to harvesting area.

Table 5.1: Natura 2000 sites of relevance with distances to the seaweed harvesting area.

Site Name	Site Code	Minimum Distance from Harvesting Area
Rutland Island and Sound cSAC	002283	0m within
Termon Strand cSAC	001195	*c.* 20m west
Gweedore Bay and Islands	001141	*c.* 330m northeast
Illancrone and Inishkerragh SPA	004132	*c.* 1.1km southwest
West of Ardara/Mass Road cSAC	000197	*c.* 6.5km south
Roaninish SPA	004121	*c.* 9km southwest
West Donegal Islands SPA	004230	*c.* 9.7km northeast

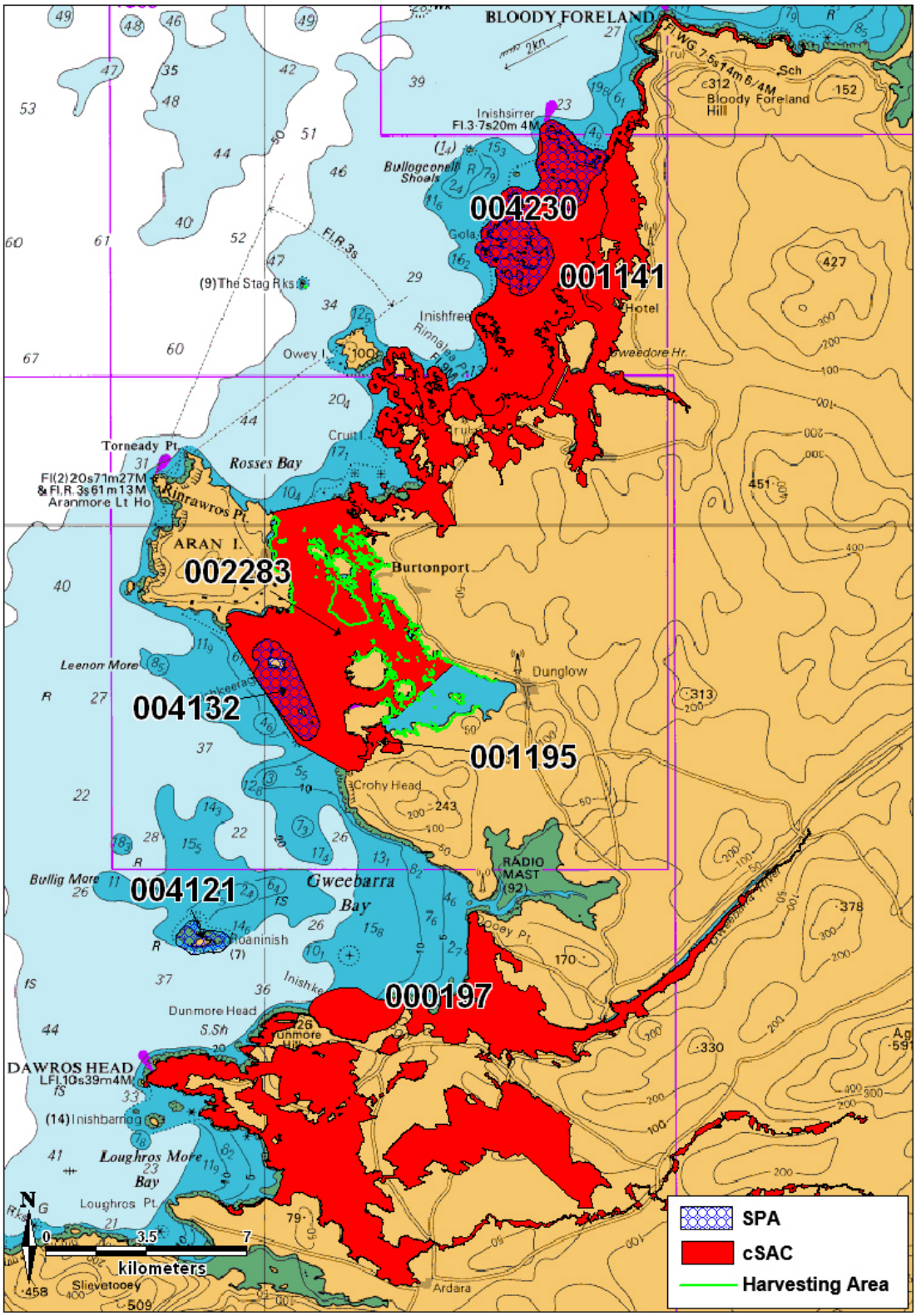

Figure 5.1: Location of the relevant Natura 2000 sites in the vicinity of the harvesting area

5.2. Characteristics of the Designated Sites

5.2.1. Rutland Island and Sound SAC (IE002283)

Rutland Island and Sound lies 5km northwest of Dungloe (NPWS, 2003a). Rutland Island itself has granite bedrock, but the dune systems on the island are highly calcareous. The shoreline of the cSAC is indented with a mixture clean sand in some areas and bedrock in others, with other areas having a mixture of mud, sand, rocks and boulders.

Rutland Island is surrounded by numerous islands, islets and rocky outcrops of varying sizes. The largest island is Aran Island which lies to the west. Aran Island is inhabited and a ferry operates between it and Burtonport. Other islands in the cSAC include Inishfree Upper, Inishal, Inishkeeragh, Inisheane, Inishmeal and Inishcoo.

Sally's Lough to the northeast of the cSAC, 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 in the site. Rutland Channel and Sound is a complex of shallow reefs and sediment communities sheltered from wave action with varying degrees of current. 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 and 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 called '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, 2003; MERC, 2008). A BioMAR study in 1996 recorded Maerl, the free-living red calcareous algae, within the cSAC. However, a later survey by MERC (2008) failed to locate these maerl communites.

The site covers an area of 3,418.37 ha and supports several habitats listed on Annex I of the E.U. Habitats Directive, along with a mammal listed on Annex II of the E.U. Habitats Directive. The relevant ecological information in the Standard Data Form for the Rutland Island and Sound cSAC IE002283 is summarised in Tables 5.2 to 5.4. A site synopsis for this cSAC can be found in Appendix 1.

Table 5.2: Relevant Annex I habitats listed on the Natura 2000 Standard Data Form

Qualifying Habitat	Code	% Cover
Large shallow inlets and bays	1160	64
Reefs	1170	30
Coastal Lagoon	1150	1

Table 5.3: Mammals listed on Annex II of the Council Directive 92/43/EEC listed on the Natura 2000 Standard Data Form

Species Name	Common Name	Code
Phoca vitulina	Common/Harbour Seal	1365

Table 5.4: Other species of importance – from the Natura 2000 Standard Data Form

Species Name	Common Name	Group
Laomedea angulata	Sea Fir	Invertebrate
Conopeum seurati	Bryozoa	Invertebrate
Pentapora foliacea	Ross	Invertebrate
Stolonica socialis	Orange Sea Grapes	Invertebrate
Onoba aculeus	Pointed Cingula	Invertebrate
Cerastoderma glaucum	Lagoon Cockle	Invertebrate
Idotea chelipes	Isopod	Invertebrate
Cladophora battersii	Green Seaweed	Plant
Phymatolithon calcareum	Maerl	Plant
Lithothamnion glaciale	Maerl	Plant

5.2.2. Termon Strand cSAC (IE001195)

This small coastal site is situated around the village of Maghery, about 5km southwest of Dungloe in west Co. Donegal (NPWS, 1999). At the back of Maghery Strand sand dunes occur. In the north of the site areas of wet grassland are found. The site includes a small area of mud flats in the extreme north fringed in parts by saltmarsh. The beach and mud flats are used by other birds such as Shelduck, Curlew and Ringed Plover. The most important feature of the site is the presence of a lagoon, a priority habitat listed on Annex I of the EU Habitats Directive. Maghery Lough is a good example of a moderate sized, shallow, meso-polyhaline lagoon, with 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 but the salinity is lowered by several small streams which flow into the lagoon from surrounding hills. Floristically, the most notable feature of the lagoon is the presence of the Red Data Book species Foxtail Stonewort (*Lamprothamnion papulosum).* This is a very rare plant in Ireland.

The site covers an area of 86.9 ha and supports a priority habitat listed on Annex I of the E.U. Habitats Directive. The relevant ecological information in the Standard Data Form for the Termon Strand cSAC IE001195 is summarised in Tables 5.5 to 5.7. A site synopsis for this cSAC can be found in Appendix 1.

Table 5.5: Relevant Annex I habitats listed on the Natura 2000 Standard Data Form

Qualifying Habitat	Code	% Cover
Coastal Lagoon	1150	21

Table 5.6: Regularly occurring Migratory Birds not listed on Annex I of Council directive 79/409/EEC

Species	Common Name	Code
Bucephala clangula	Common Goldeneye	A067
Charadrius hiaticula	Ringed Plover	A137

Table 5.7: Other species of importance – from the Natura 2000 Standard Data Form

Species Name	Common Name	Group
Conopeum seurati	Bryozoa	Invertebrate
Palaemonetes varians	Common ditch shrimp	Invertebrate
Jaera ischiosetosa	Isopod	
Jaera nordmanni	Isopod	
Cerastoderma glaucum	Lagoon Cockle	Invertebrate
Idotea chelipes	Isopod	Invertebrate
Neomysis integer	Opossum shrimp	Invertebrate
Atheta aquatalis	Beetle	Invertebrate
Lamprothamnium papulosum	Foxtail stoneworth	Plant
Ruppia maritima	Tassel pondweed	Plant
Ruppia cirrhosa	Spiral ditchgrass	Plant
Cygnus olor	Mute swan	Bird

5.2.3. Gweedore Bay and Islands (IE001141)

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. 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 EU Birds Directive, i.e. Barnacle Goose, Chough, Great Northern Diver, Storm Petrel and the Tern species and, as such, are of particular significance.

The site covers an area of 6016.13 ha and supports a number of habitats listed on Annex I of the E.U. Habitats Directive and species listed on Annex II of the habitats directive. Given the distance to the harvesting area, the only qualifying interest of relevance is the otter. A site synopsis can be found in Appendix 1.

5.2.4. Illancrone and Inishkeeragh SPA (IE004132)

Illancrone and Inishkeeragh are two islands located within Rutland Island and Sound SAC. They lie south of Aran Island and west of Inishfree Upper and Terman, 8 to 9km west of Dungloe town. Both islands are important breeding sites for seabirds. Annex I of the EU Birds Directive listed species Arctic Tern (224 pairs), Little Tern (13 pairs) and Sandwich Tern (1 pair) were recorded in the sites in 1995. The SPA supports nationally important numbers of Barnacle Geese (260 in 1999), which use the site as a winter feeding grounds. In 1984, Illancrone was the largest known colony of Arctic Tern in Ireland (132 nesting pairs). Herring Gulls, Roseate Terns, Common Terns and Lesser Black-backed Gulls have also been recorded within the SPA (NPWS, 2002).

The SPA covers an area of 419.58 ha and is of conservation importance due to species of birds occurring here

that are listed in the E.U. Birds Directive (see Table 5.8). A site synopsis for this SPA can be found in Appendix 1.

Table 5.8: Birds listed on Annex I of the Council Directive 79/409/EEC listed on the Natura 2000 Standard Data Form

Species Name	Common Name	Code
Branta leucopsis	Barnacle Goose	A045
Sterna hirundo	Common Tern	A193
Sterna paradisaea	Arctic Tern	A194
Sterna albifrons	Little Tern	A195

5.2.5. West of Adara / Mass Road cSAC (IE000197)

This extensive site occupies the area of coast immediately north of Ardara in southwest County Donegal (NPWS, 2006). From there, it continues northwards around the coast, and then up the Gweebarra River to Doocharry. From the centre of the site an expanse of blanket bog extends south-east almost to Glenties. Lough Beg Bay and Slieve Tooey Mountain are adjacent and to the south-west of the site. The Owenea system and some of its tributaries including the Stracashel and Owengarve Rivers.

The site is of great ecological interest, with at least twenty-three habitats which are listed on Annex I of the E.U. Habitats Directive. The site is a candidate SAC selected for blanket bog, machair, fixed grey dunes, decalcified dune heath, decalcified *Empetrum* dunes, and Orchid-rich calcareous grassland, all priority habitats on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for lowland dunes with creeping willow, dune slack, marram dunes, large shallow inlets and bays, tidal mudflats, estuaries, Atlantic salt meadows, Mediterranean salt meadows, lowland oligotrophic lakes, alpine heath, dry heath, wet heath, *Molinia* meadows, lowland hay meadows, alkaline fens, Rhynchosporion, and Juniper scrub, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Slender Naiad, Freshwater Pearl Mussel, Marsh Fritillary, Petalwort, Atlantic Salmon, Common Seal, Geyer's Whorl Snail and Otter.

The site covers an area of 6,739.04 ha. Given the distance to the harvesting area, the only qualifying interest of relevance is the common seal. A site synopsis can be found in Appendix 1.

5.2.6. Roaninish SPA (IE004121)

This uninhabited site comprises a tight group of small, flat, low-lying islets surrounded by extensive intertidal

rocks, situated in Gweebarra Bay, approximately 3km northwest of Dunmore Head in Co. Donegal (NPWS, 2003b). The highest point is 9m above sea level. The surrounding seas to a distance of 200m, where seabirds forage, bathe and socialise, are included within the site. Much of the site is sparsely vegetated, with the exception of the main island, Roaninish, which supports lush maritime grassland. Two small ponds occur on Roaninish and support some aquatic species. Roaninish is an important breeding site for several seabird species: Cormorant, Shag, Herring Gull, Great Black-backed Gull, Arctic Tern and Black Guillemot. Roaninish is a wintering site for Barnacle Goose and is also occasionally used for roosting at night by the flock of Greenland White-fronted Goose that feed at Sheskinmore on the mainland.

The site covers an area of 145.82 ha. Given the distance to the harvesting area, the only qualifying interest of relevance is the barnacle goose. A site synopsis can be found in Appendix 1.

5.2.7. West Donegal Islands SPA (IE004230)

West Donegal Islands SPA consists of a series of small to moderate-sized islands lying between 700m and 3.5km off the north-west coast of Co. Donegal (NPWS, 2011a). It includes the islands of Gola, Inishmeane, Inishsirrer (the three largest), Umfin, Go, Allagh, Torglass, Tornacolpagh and Tororragaun, as well as a number of smaller rocky islets. The islands are low-lying, the highest point being Knockaculleen on Gola (68m). The site, which includes the intervening and surrounding seas to 200m from the shorelines, is highly exposed to Atlantic swells. The predominant habitat of the islands is grassland, with both wet and dry types represented; small areas of dune grassland also occur. Small lakes occur on Inishsirrer and Gola. The rocky shorelines have areas of boulders, shingle and coarse sand, and grade into submarine reefs, which are common in the shallow surrounding seas. The islands are uninhabited other than some summer dwellings on Gola and Inishmeane.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Shag, Barnacle Goose, Corncrake, Common Gull and Herring Gull. The site also supports nationally important populations of wintering Barnacle Goose and breeding Shag, Common Gull and Herring Gull. Also of note is that three of the regularly occurring species are listed on Annex I of the E.U. Birds Directive, i.e. Barnacle Goose, Arctic Tern and Corncrake.

The site covers an area of 1,129.41 ha. Given the distance to the harvesting area, the only qualifying interest of relevance is the barnacle goose. A site synopsis can be found in Appendix 1.

5.3. Conservation Objectives

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, is stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitat, and
- the natural range of the species is neither being reduced or likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

* denotes priority habitats.

The conservation objectives of **Rutland Island and Sound SAC IE002283** are outlined below (NPWS, 2011b) and are addressed in a letter from NPWS received as part of the consultation process (see Appendix 2).

Objective: To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected:

- [1150] * Coastal lagoons
- [1160] Large shallow inlets and bays
- [1170] Reefs
- [1210] Annual vegetation of drift lines
- [1365] *Phoca vitulina*
- [2110] Embryonic shifting dunes
- [2120] Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")
- [2130] * Fixed coastal dunes with herbaceous vegetation ("grey dunes")
- [2190] Humid dune slacks

The conservation objectives of **Termon Strand SAC IE001195** are outlined below (NPWS, 2011c).

Objective: To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected:

- [1150]* Coastal lagoons

The conservation objectives of **Gweedore Bay and Islands cSAC IE001141** are outlined below (NPWS, 2011d).

Objective: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this cSAC:

- [1150] * Coastal lagoons
- [1170] Reefs
- [1220] Perennial vegetation of stony banks
- [1355] *Lutra lutra*
- [1395] *Petalophyllum ralfsii*
- [1410] Mediterranean salt meadows (*Juncetalia maritimi*)
- [1833] *Najas flexilis*
- [2110] Embryonic shifting dunes

- [2120] Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")
- [2130] * Fixed coastal dunes with herbaceous vegetation ("grey dunes")
- [2140] * Decalcified fixed dunes with *Empetrum nigrum*
- [2150] * Atlantic decalcified fixed dunes (*Calluno-Ulicetea*)
- [2170] Dunes with *Salix repens* ssp.*argentea* (*Salix arenariae*)
- [2190] Humid dune slacks
- [21A0] Machairs (* in Ireland)
- [3110] Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflora*e)
- ☐ [4030] European dry heaths
- ☐ [4060] Alpine and Boreal heaths
- ☐ [5130] *Juniperus communis* formations on heaths or calcareous grasslands

The conservation objectives of **Illancrone and Inishkeeragh SPA IE004132** are outlined below (NPWS, 2011e).

Objective: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

- *Sterna hirundo [breeding]*
- *Sterna paradisaea [breeding]*
- *Sterna albifrons [breeding]*
- *Branta leucopsis [wintering]*

The conservation objectives for **Roaninish SPA IE004121** are outlined below (NPWS, 2011f).

Objective: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

- *Larus argentatus* [breeding]
- *Branta leucopsis* [wintering]

The conservation objectives for **West Donegal Islands SPA IE004230** are outlined below (NPWS, 2011g).

Objective: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

- *Phalacrocorax aristotelis* [breeding]
- *Crex crex* [breeding]
- *Larus canus* [breeding]
- *Larus argentatus* [breeding]
- *Branta leucopsis* [wintering]

6. Description of the Receiving Environment

6.1. Environmental Survey

6.1.1. Aims

The aims of the survey were:

- To map the harvestable areas of *Ascophyllum nodosum* within Rutland Island and Sound cSAC;
- To measure the biomass of *A. nodosum* within Rutland Island and Sound cSAC;
- To note any other flora and fauna in the area; and
- To determine the effect harvesting would have on the Rutland Island and Sound in terms of its conservation objectives.

6.1.2. Methods and Materials

Fieldwork was carried out on the 25th and 26th June 2013 by two qualified AQUAFACT biologists. The islands within Rutland Island and Sound SAC were surveyed on the first day on a rib while the coastline of the mainland was surveyed the second day. Weather the first day was overcast with light squalls, sunny spells and a light wind. Weather the second day was sunny, calm and bright. Surveying was done approximately three hours before low tide to three hours after low tide on each day.

Mapping the harvestable areas of *A. nodosum* was carried out by marking the areas of rocky shoreline where the seaweed was present using GPS waypoints on a hand held GARMIN GPS 12 and also by marking the areas of presence and absence on pre-printed and laminated aerial photographs using an indelible marker.

To get an estimate of the biomass of *A. nodosum* within the cSAC, the amount of the seaweed per 0.25m^2 quadrat was weighed. The quadrat was randomly thrown within the mid to low intertidal zone *i.e.* the zone within which *A. nodosum* occurs. The co-ordinates of the quadrat were recorded and a photograph taken. The species of seaweeds and any fauna present within the quadrat were then recorded along with the

substrate type and the length of the *A. nodosum* bed running down the shore. Next, *A. nodosum* within the quadrat was cut leaving approximately 20cm behind attached to substrate. Only plants that originated within the quadrat were cut (*i.e.* holdfasts within the quadrat). If any fronds from plants outside the quadrat were present these were moved aside. Conversely, if fronds from the plants which originated inside the quadrat were outside, these were included. The seaweed was then weighed to the nearest 0.5kg. Other species of seaweed such as *Fucus vesiculosus* were not cut or weighed. The seaweed *Polysiphonia* spp. which is epiphytic upon *A. nodosum* was included in the measurements. A total of 35 quadrats were taken over the two days, 16 from the islands and 19 from the shoreline of the mainland within Rutland Island and Sound cSAC. Figure 6.1 shows the locations of these quadrates and Figure 6.2 shows some examples of the quadrats examined.

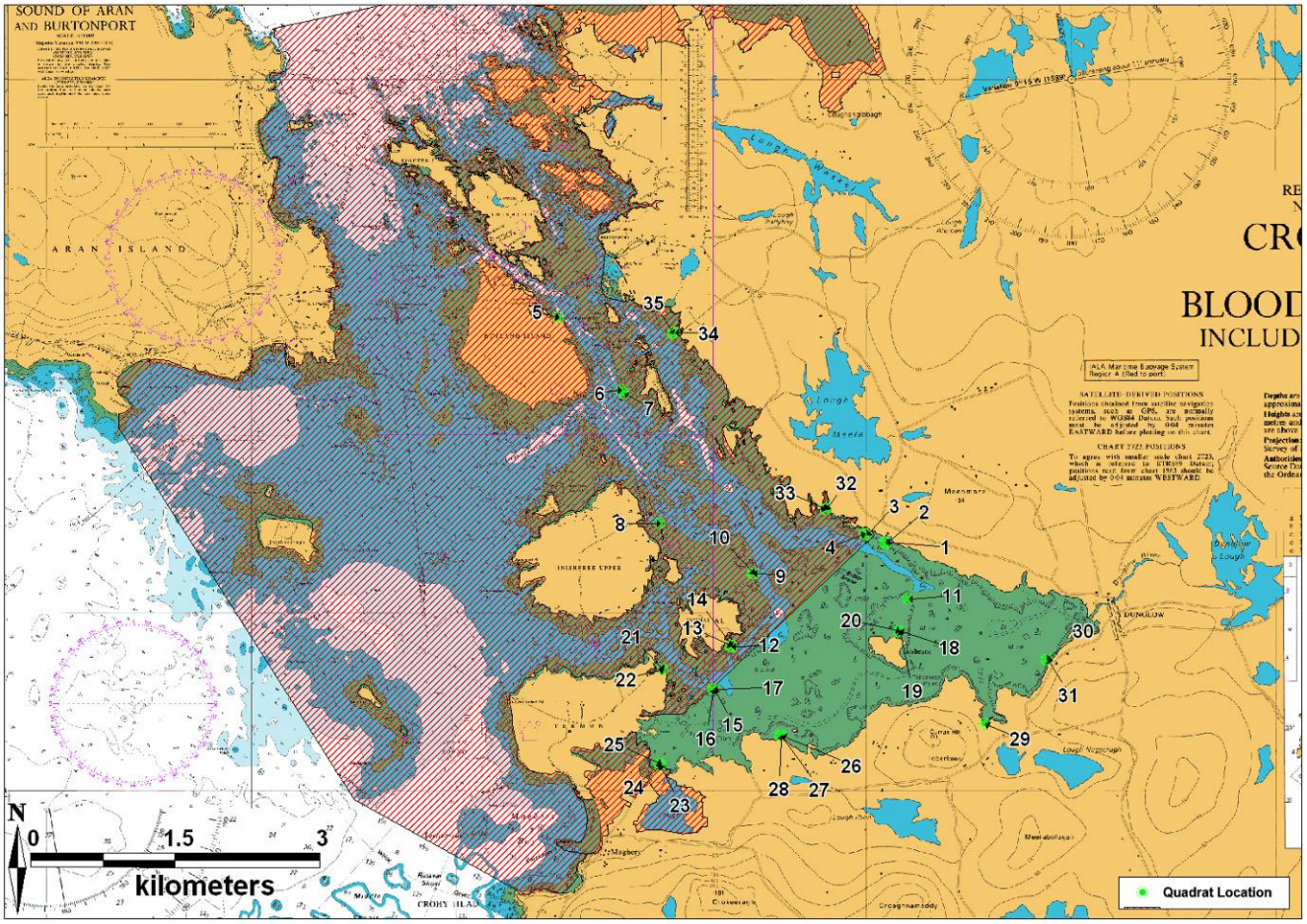

Figure 6.1: Location of the surveyed quadrats

Figure 6.2: Examples of the quadrats examined

6.1.3. Results

Table 6.1 shows the data obtained from each quadrat.

Table 6.1: Data obtained from each quadrat surveyed.

Quadrat	Longitude /Latitude	Wet wt. (kg/0.25 m^2)	Substrate	Bed length (horizontal)(m)	Other Seaweeds Recorded	Other Species recorded
1	-8.39752 54.95662	4.5	bedrock w/sand patches around	30-50	*Fucus vesiculosus*, *Polysiphonia* sp.	*Mytilus edulis*, *Melarhaphe neritoides*, barnacles, *Spirorbis* sp.
2	-8.39742 54.95647	7.5	bedrock	30-50	*Fucus serratus*	*Spirorbis* sp., barnacles
3	-8.4006 54.95732	13.5	bedrock (sand around)	35	*F. serratus*	
4	-8.40093 54.95737	16.5	bedrock (sand around)	45	*F. vesiculosus*	
5	-8.45073 54.97767	1	bedrock	20	*F. serratus*, *Entromorpha* sp., *Palmaria palmata*,	
6	-8.4406 54.9709	5	bedrock	outcrop	*F. serratus*, *F. vesiculosus*	
7	-8.4401 54.97057	10.5	bedrock	outcrop		*Spirorbis* sp., Oystercatcher
8	-8.43433 54.95838	6.5	bedrock	35		
9	-8.41908 54.95368	6.5	bedrock	100	*F. serratus* (epiphytic on *Ascophyllum)*	
10	-8.41905 54.95367	6.5	bedrock	100	*F. serratus* (epiphytic on *Ascophyllum*)	

Quadrat	Longitude /Latitude	Wet wt. (kg/0.25 m^2)	Substrate	Bed length (horizontal)(m)	Other Seaweeds Recorded	Other Species recorded
11	-8.39385 54.95132	3.5	bedrock	rocky crop	*Polysiphonia* sp.	
12	-8.42258 54.94687	14	bedrock	40		
13	-8.42258 54.94693	0	stones on muddy sand	40	*F. vesiculosus*	
14	-8.42265 54.94693	7.5	bedrock	40		
15	-8.4255 54.94285	3.5	bedrock	total cover		*M. neritoides*, *Littorina littorea*
16	-8.42553 54.94278	1	bedrock	total cover		
17	-8.42558 54.94278	5.5	bedrock	total cover		M. neritoides, Littorina littorea
18	-8.39528 54.94832	1	bedrock	total cover		
19	-8.39527 54.94832	0	bedrock	total cover		
20	-8.39525 54.9483	6	bedrock	total cover		*Littorina obtusata*
21	-8.43378 54.94465	1	soft mud	>100		
22	-8.43378 54.94467	6	soft mud and stone	>300	*F. vesiculosus*	*Littorina saxatilis,* ampipods, Common Gull
23	-8.43422 54.93573	2	bedrock	>15		*Patella* sp., barnacles, mullet in water
24	-8.43413	5	bedrock	>15	*F. vesiculosus*	Barnacles

Quadrat	Longitude /Latitude	Wet wt. (kg/0.25 m^2)	Substrate	Bed length (horizontal)(m)	Other Seaweeds Recorded	Other Species recorded
	54.93572					
25	-8.43413 54.93577	1	bedrock	>15		
26	-8.41452 54.93847	6.5	stones on mud	>15		*littorina littoralis, L. littorea, Spirorbis* sp., *Patella* sp., *Monodonta lineata,* Curlew
27	-8.41457 54.9385	5.5	stones on mud	150-200		*L. obtusata*
28	-8.41458 54.93852	10	Roc\k and mud	150-200		*Spirorbis* sp., *Patella* sp., *L. obtusata*, barnacles, ampipods
29	-8.38138 54.9396	5	bedrock w/rock	150-200	*F. vesiculosus*	*Mytilus* sp., *M. neritoides, Carcinus maenas,* amphipods,
30	-8.37132 54.9456	1.5	bedrock	max 10	*F. vesiculosus*	
31	-8.37127 54.9456	4.5	rock,stones on muddy sand	max 10		
32	-8.40718 54.95973	12	boulders on muddy sand	Variable, max 100		*L. littorea*
33	-8.40717 54.95967	12	boulders on muddy sand	Variable, max 100		*Littorina* sp.
34	-8.43188 54.97628	10	boulders on muddy sand	50	*F. vesiculosus*	*Littorina* sp.
35	-8.43208 54.97623	6	boulders on muddy sand	50		

There is 95.7km of harvestable coastline in Rutland Island and Sound cSAC. The green line in Figure 6.3 shows the harvestable area of *A.nodosum*. Please note the area in around Dungloe town is excluded as OGT does not intend to harvest *A.nodosum* in this area due to concern over sewage effluent from the town. In addition, the inlet south of Termon is also excluded to avoid extending into the Termon Strand cSAC. The total wet weight of *A. nodosum* from the 35 quadrates examined was 208kg giving a mean of 5.9kg/0.25m^2 which gives 23.6kg/m^2. A 30m band width was used and the length of suitable coastline is 95.7km. This gives a total biomass of *A. nodosum* of 67,756t for the area. OGT intends to harvest 8,000t annually which is 11.81% of the total available biomass.

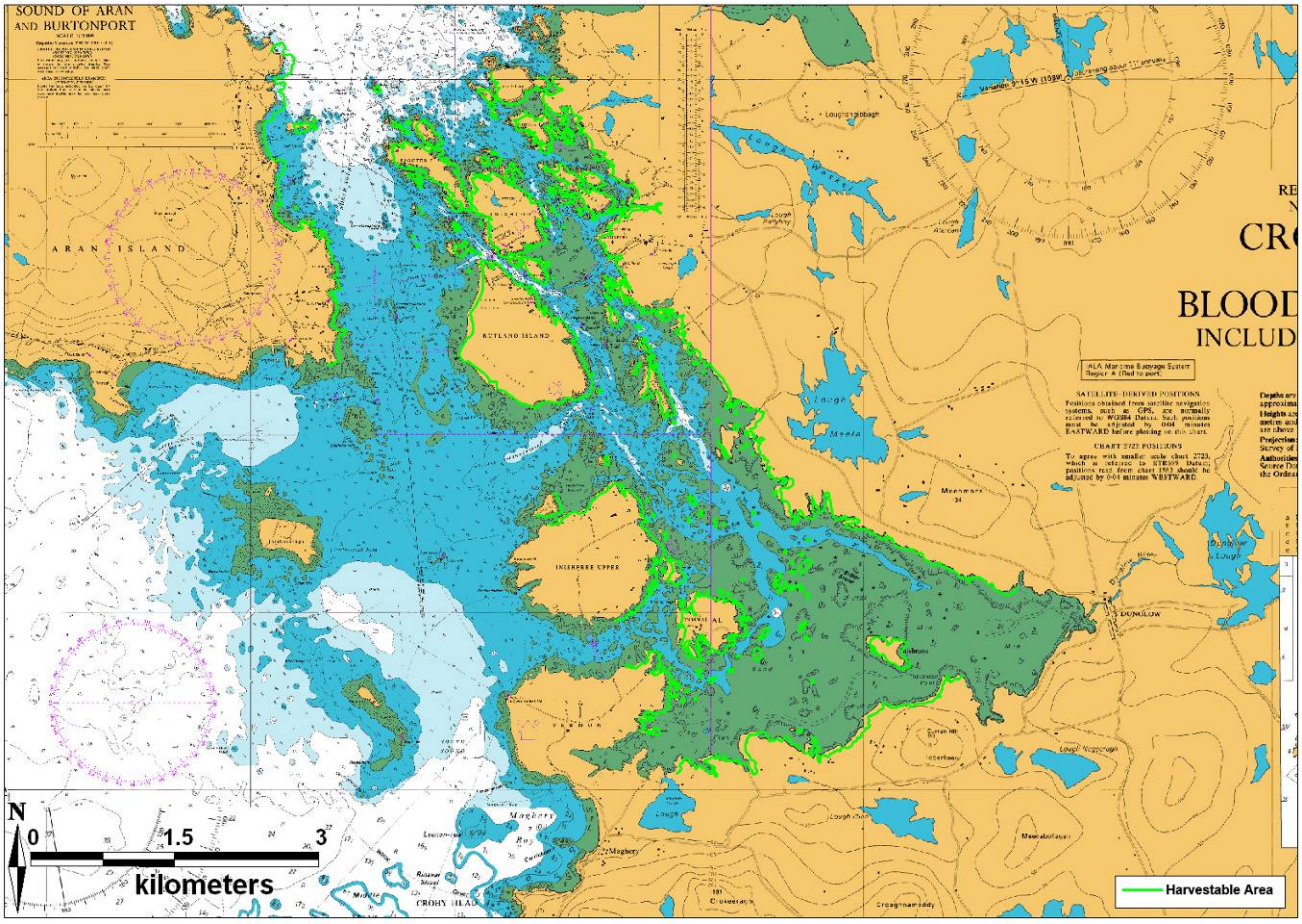

Figure 6.3: Harvestable area within Rutland Island and Sound cSAC.

7. Assessment of the Likely Effects

The harvesting activity will result in the:

- Trampling of flora and fauna during weed cutting process;
- Uncovering of previously hidden fauna *e.g.* winkles, crabs, fish thereby making them available as prey items;
- Uncovering of sediment and subsequent desiccation by sunlight thereby impacting infauna;
- Reduction in "dampening effect" of weed thereby increasing sediment erosion;
- Disturbance by cutters and boats to birds, seals and otters;
- Removal of biomass that would have previously been taken up naturally by ecosystem;

7.1. Impacts on Rutland Bay & Islands cSAC (Site Code: IE002283)

The coastal lagoon will not be impacted by the harvesting activity as no *Ascophyllum* occurs in the lagoon.

As the *Ascophyllum* grows on rocky intertidal reefs, some level of disturbance will occur due to the harvesting activity. *Ascophyllum* will be removed permanently from the site and other reef species will be trampled during the cutting process and become more exposed to predators and desiccation. However, given the density of intertidal reefs, the low rate of harvesting and the sustainable approach to the harvesting activity, no deleterious effects will be experienced by the reefs.

As no harvesting will take place in the subtidal habitat *i.e.* large shallow inlet and bay, this ecosystem will not be impacted by the proposed activity.

The common seal will be disturbed by the boat movements to and from the harvesting sites and if hauled out, they will be disturbed by the presence of the cutter in the intertidal zone *i.e.* they will move back into the water off their haul out area. As the harvesting activity will be performed by 1 individual, the impact his presence will have on seals is minimal. In addition, other boats frequently use the Sound for transport, fishing and recreational activity. The addition of 1 extra boat will have insignificant impact on seals.

7.2. Impacts on Termon Strand cSAC (Site Code: IE001195)

The coastal lagoon will not be impact by the harvesting activity as no *Ascophyllum* occurs in the lagoon. The goldeneye and ringed plover use the intertidal area for feeding. The presence of 1 individual on the shore will

have an insignificant impact on bird species.

7.3. Impacts on Gweedore Bay & Islands (Site Code: IE001141)

The otter has the potential to forage in the Rutland Island & Sound cSAC. The presence of 1 individual on the shore will have an insignificant impact on this species. Any disturbance by the movement of the boat will be insignificant given the level of boating activity currently in the area.

7.4. Impacts on Illancrone & Iniskkerragh SPA (Site Code: IE004132)

Arctic tern, Common tern and Little tern all forage in the intertidal zone when covered by sea water at High Tide. As cutting can only occur between an ebbing half tide and back up to half rising tide, these species will not be able to feed when cutting is going on. The presence of 1 individual on the shore will have an insignificant impact on these bird species. Barnacle geese graze grass on off shore islands and they therefore will not be impacted by cutters who are working on the shore line.

7.5. Impacts on West of Adara / Mass Road cSAC (Site Code: IE000197)

The common seals in this cSAC have the potential to forage in the Rutland Island & Sound cSAC area and therefore in the seaweed harvesting area. If present, the seals will be disturbed by the boat movements to and from the harvesting sites and if hauled out they may be disturbed by the presence of the cutter in the intertidal zone. As the harvesting activity will be performed by 1 individual the impact, their presence on seals is minimal. In addition, boats frequently use the Sound for transport, fishing and recreational activity. The addition of 1 extra boat will have insignificant impact on seals.

7.6. Impacts on Roaninish SPA (Site Code: IE004121)

Barnacle geese graze grass on offshore islands and they therefore will not be impacted by cutters who are working on the shore line.

7.7. Impacts on West Donegal Islands SPA (Site Code: IE004230)

Barnacle geese graze grass on offshore islands and they therefore will not be impacted by cutters who are working on the shore line.

7.8. In Combination Effects

No existing or proposed activities occur in the area that would result in in combination effects.

8. Mitigation Measures

OGT has prepared a sustainable harvest plan for the annual harvesting of *Ascophyllum nodosum* in Dungloe and this will act as a mitigation measure to ensure the conservation objectives of the cSAC are safeguarded.

9. Residual Impact

The annual cutting of *c.* 8,000t of *A. nodosum* will have the residual impact of removal of approximately 11.81% of the total biomass of this alga. Boaden & Dring (1980) comment that *Ascophyllum* harvesting as a significant and persistent effect on shore ecology; however, Kelly *et al.* (2001) found no discernible effects over an 18 month period on shore diversity either after mechanical or hand harvesting of the alga in both Clew Bay and Connemara. They did note that *Fuscus vesiculosus* increased at both sites. Site rotation will ensure that the plants have the possibility to re-grow prior to future harvesting four years later. Given the total biomass of *A. nodosum* in Dungloe Bay, it is not considered that this residual impact will have any significant negative impact on the functioning of the cSAC.

10. Conclusion

None of the qualifying interests, habitat functioning or conservation objectives of the Rutland Island and Sound cSAC (IE002283) (within which the harvesting will occur) or of Termon Strand cSAC (IE001195), Gweedore Bay and Islands cSAC (IE001141), Illancrone and Inishkerragh SPA (IE004132), West of Ardara/Mass Road cSAC (IE000197), Roaninish SPA and West Donegal Islands SPA (IE004230) will be significantly negatively impacted by the proposed seaweed harvesting operation in the Rutland Island & Sound cSAC.

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Appendix 1

Site Synopses

SITE SYNOPSIS

SITE NAME: RUTLAND ISLAND AND SOUND

SITE CODE: 002283

Rutland Island and Sound lies between Aran Island and Burtonport in north-west Donegal, 5km north-west of Dunglow. Besides Rutland itself a number of other small rocky islets are also included in the site. The bedrock of Rutland Island is granite, but the dune systems on the island are highly calcareous.

The site is a candidate SAC selected for eight habitats listed on Annex I of the E.U. Habitats Directive: fixed dunes and lagoon, both priority habitats, Marram dunes, embryonic shifting dunes, dune slacks, drift lines, reefs and large shallow inlets and bays.

On the western side of the island, vigorous embryonic dunes with Sand Couch (*Elymus farctus*) are backed by dunes with Marram (*Ammophila arenaria*) and Common Milkwort (*Polygala vulgaris*) and by fixed grey dunes with Kidney Vetch (*Anthyllis vulneraria*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Lady's Bedstraw (*Galium verum*), Biting Stonecrop (*Sedum acre*) and mosses (*Tortula* spp.). The fixed dunes grade into dune grassland. Good dune slacks, flushes and marshes also occur in places. Plants typically occurring in these damp areas include Cuckooflower (*Cardamine pratensis*), Bog Pimpernel (*Anagallis tenella*), Water Mint (*Mentha aquatica*) and Selfheal (*Prunella vulgaris*). Snipe have also been recorded in these wet areas. The south end of the island has good drift line vegetation characterised by Orache sp. (*Atriplex* sp.).

Sally's Lough, which is situated inn the eastern part of the site, is a good example of a saline lake lagoon. While the lagoon basin is entirely natural, the narrow tidal inlet is apparently artificial. Seawater enters the lake on most tides but is diluted by rainfall running off the surrounding hills. Depth is up to 4 m and salinity has varied from 28 ppt to 34.3 ppt. Two lagoonal specialists, Tasselweed (*Ruppia* spp.) and the green alga *Chaetomorpha linum*, were recorded in a recent survey, as well as a rare alga, *Cladophora battersii,* which grows unattached on the lagoon bed. Extensive underwater cliffs occur in the southwestern quarter. These support a moderately diverse macroalgal flora. Common Reed (*Phragmites australis*) occurs at the western end of the lake and the lagoon habitat is relatively rich, with 49 extra taxa recorded in a recent survey. Four species are regarded as lagoonal specialists: *Onoba aculeus, Cerastoderma glaucum, Idotea chelipes* and *Conopeum seurati.* Two further species, *Ampithoe ramondi* and *Lembos longipes* are rare in Ireland.

Rutland Channel and Sound is a complex of shallow reefs and sediment communities sheltered from wave action with varying degrees of current. 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 and 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 called '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.

Rutland Island and Sound contains important examples of eight habitats listed on Annex I of the E.U. Habitats Directive. The presence of a number of rare marine species adds further to the conservation importance of the site.

24.03.2003

SITE SYNOPSIS

SITE NAME: TERMON STRAND

SITE CODE: 001195

This small coastal site is situated around the village of Maghery, about 5 km south-west of Dunglow in west Co. Donegal. At the back of Maghery Strand sand dunes occur, the dominant species being Marram (*Ammophila arenaria*) and Sand Sedge (*Carex arenaria*), with Sea Couch (*Elymus farctus*) found closer to the beach. Further from the sea the dunes have been fertilised. In the north of the site areas of wet grassland are found, with flowering plants such as Selfheal (*Prunella vulgaris*), Common Knapweed (*Centaurea nigra*) and Yellow Iris (*Iris pseudacorus*) occurring. The site includes a small area of mud flats in the extreme north fringed in parts by saltmarsh.

The most important feature of the site is the presence of a lagoon, a priority habitat listed on Annex I of the EU Habitats Directive. Maghery Lough is a good example of a moderate sized, shallow, meso-polyhaline lagoon, with 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 but the salinity is lowered by several small streams which flow into the lagoon from surrounding hills. Floristically, the most notable feature of the lagoon is the presence of the Red Data Book species Foxtail Stonewort (*Lamprothamnion papulosum).* This is a very rare plant in Ireland, being known only from counties Clare, Wexford and Donegal. Both species of Tasselweed *(Ruppia maritima* and *R. cirrhosa)* occur in the lagoon, along with Eelgrass (*Zostera marina*). Marginal vegetation is well developed and includes the Saltmarsh Rush (*Juncus gerardi*), the Sea Rush (*Juncus maritimus*) and Common Reed (*Phragmites australis)* grading into freshwater marsh. During recent surveys, a total of 32 aquatic faunal taxa were recorded at this site, of which four species are regarded as lagoonal specialists in Britain (*Cerastoderma glaucum, Idotea chelipes, Palaemonetes varians, Conopeum seurati*) and three additional species are proposed lagoonal specialists for Ireland (*Jaera ischiosetosa, J. nordmanni, Neomysis integer*). Two species *(Jaera ischiosetosa, Conopeum seurati)* appear to be rare or are under-recorded in Ireland. Of note is a thriving population of the Soft Clam (*Mya arenaria)* of various age classes.

Maghery Lough is of some local value for wintering waterfowl, including Mute Swan, Wigeon, Goldeneye and an occasional Whooper Swan. The beach and mud flats are used by other birds such as Shelduck, Curlew and Ringed Plover.

The site is of particular importance for the presence of a lagoon, a much threatened habitat in western Europe. The occurrence of the very rare Foxtail Stonewort further adds to its conservation significance.

13.7.1999

SITE NAME: GWEEDORE BAY AND ISLANDS

SITE CODE: 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. The terrain is generally undulating with rocky knolls of exposed rock. The site is underlain by Granodiorite, a basic igneous rock. 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.

Machair grasslands are frequent within the site, being most extensive at Derrybeg, Bunlack, Carnboy, Kincaslough and west of Keadew. Machair occupies the central area of the tombolo joining Carnboy to the mainland and supports a species-rich vegetation, with hummocky areas colonised by Marram (*Ammophila arenaria*), Thrift (*Armeria maritima*), Sea Campion (*Silene vulgaris* subsp. *maritima*) and Common Sorrel (*Rumex acetosa*), and flat areas between the hummocks with a grassy vegetation dominated by a variety of grass species and with an abundance of small herbs species. Generally similar vegetation occurs on other machairs in the site.

Sand dunes are frequently found in association with machair on the site. Embryonic dunes are well represented, with particularly good examples to be found at Magheraclogher and to the west of Keadue strand. Lyme Grass (*Leymus arenarius*), *Elymus farctus* and Sand Sedge (*Carex arenaria)* are characteristic species of the embryonic dunes. The embryonic dunes often merge with white dunes dominated by Marram (*Ammophila arenaria*).

Fixed dunes are frequent throughout the site, with some of the best examples occurring at Lunniagh, to the north of Mullaghderg Lough, Gola Island and Cruit Island. The habitat is normally found behind the embryonic and/or Marram dunes and can reach a height of 20 metres or more. Important species of the habitat include Red Fescue (*Festuca rubra),* Lady's Bedstraw *(Galium verum*), Marram *(Ammophila arenaria),* Pyramidal Orchid *(Anacamptis pyramidalis), Burnet Rose (Rosa pimpinellifolia),* Bird's-foot Trefoik *(Lotus corniculatus),* Wild Carrot *(Daucus carota)* and Wild Thyme *(Thymus praecox).* The most frequent and conspicuous bryophytes are *Tortula ruraliformis, Homalothecium lutescens* and *Rhytidiadelphus squarrosus.* At least three separate populations of the Red Data book plant species *Draba incana* have been recorded growing in this habitat within the last five years. Another unusual species associated with the habitat is the diminutive fern, Moonwort (*Botrychium lunaria*), a nationally scarce plant species. Fixed dunes with heath vegetation, including a specific type with Crowberry (*Empetrum nigrum*), is a feature of the site. This habitat has developed on thin, well-drained sandy soils often with

outcropping rock, along the contact zone between dune grassland and coastal heath. At certain sites the habitats have developed in areas where sand is blown up onto coastal heath by strong onshore winds. This mixing of sand and peat soils result in the co-occurrence of dune grassland species such as Red Fescue (*Festuca rubra)*, Birds'-foot Trefoil (*Lotus corniculatus),* Burnet Rose (*Rosa pimpinellifolia)* and Wild Thyme (*Thymus praecox)* with dry heath species such as Ling Heather (*Calluna vulgaris)*, Cross-leaved Heath (*Erica cinerea), Danthonia decumbens, Hypericum pulchrum* and Tormentil *(Potentilla erecta).* Crowberry (*Empetrum nigrum*) is an occasional species.

Associated with the dune systems are dune slacks. These occur in both small, seasonally flooded depressions interspersed between areas of high fixed dune and as more extensive flat areas. Creeping Willow (*Salix arenaria*) is a characteristic species, and may accompanied by a range of wetland species, including Common Bent (A*grostis stolonifera), M*arsh Bedstraw *(Galium palustre*), Silverweed *(Potentilla anserina),* Marsh Pennywort *(Hydrocotyle vulgaris),* Marsh Cinquefoil *(Potentilla palustris),* Trailing Tormentil *(Potentilla anglica)* and Autumn Hawkbit (*Leontodon autumnalis*), and a range of small sedge species *(Carex demissa, Carex nigra, Carex flacca).* Species typical of well-drained dune grassland occur in the drier areas of the slacks.

Areas of dry heath are common along the exposed rocky shores of this site which are not dominated by sand-dunes or related habitats. Typically, areas of heath occur interspersed between rocks outcrops and patches of acid grassland vegetation, however occasionally the habitat may occur as a mosaic with dune grassland, giving rise to a species-rich mixture of plant species, such as at Rinnalea Point north of Kincaslough. The typical species encountered in the habitat are Heather (*Calluna vulgaris)* (dominant), Bell Heather (*Erica cinerea),* Cross-leaved Heath (*Erica tetralix),* Purple Moor Grass *(Molinia caerulea), Tormentil (Potentilla erecta)* and Mat Grass *(Nardus stricta).* Locally, more unusual species such as Bearberry (*Arctostaphylos uva-ursi)* and Crowberry (*Empetrum nigrum)* can occur. In some areas the habitat forms a mosaic with heath dominated by *Juniperus communis*. 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. The lakes are good examples of oligotrophic lakes, of which Mullaghderg Lough is the largest and most interesting. Typical plant species present include *Lobelia dortmanna, Eriocaulon aquaticum* and *Isoetes lacustris.* The Annex II aquatic species Slender Naaid (*Najas flexilis)* occurs in at least one of the lakes.

The site is notable for the presence of a number of rare plants species, including Slender Najas (*Najas flexilis*) and Petalwort (*Petalophyllum ralfsii*), both of which are listed on Annex II of the EU Habitats Directive. Other scarce bryophytes recorded from the site include *Distichium inclinatum* and *Rhodobryum roseum.* Also found on the site are Small-white Orchid (*Pseudorchis albida*), a protected species (Flora Protection Order, 1987), and the threatened, Red Data Book species, Hoary Whitlowgrass (*Draba incana*).

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). All but the latter species also breed at Mullaghderg Lough. In 1995, 18 pairs of Common Tern and 28 pairs of Arctic tern were recorded. Cormorant, Shag and Storm Petrel also use some of the islands in the site. Barnacle Geese winter on islands in the bay, with more than 300 individuals recorded in some years, e.g. 388 in spring 1994. Choughs are found in many areas of the site, as, for example, on Cruit Island and Gola Island - a total of 6 pairs of Chough bred within the site in 1992. Nationally important numbers of Long-tailed Duck occur in Inishfree Bay, with an average maximum of 53 individuals over the five year period 1994/95-1998/99. An important population of Great Northern Diver also occurs in Inishfree Bay (average maximum of 36 individuals). The site has important populations of breeding waders, especially on the machairs. In a 1996 survey, the following were recorded: Oystercatcher 23 pairs, Ringed Plover 7 pairs, Lapwing 43 pairs, Dunlin 6 pairs and Redshank 5 pairs.Several of the bird species that use the site are listed on Annex I of the EU Birds Directive, i.e. Barnacle Goose, Chough, Great Northern Diver, Storm Petrel and the Tern species, and, as such, are of particular significance.

The sand dunes and areas of machair on the site are particularly vulnerable to being overused for recreational activities and to unfavourable grazing regimes. Machair is best maintained as an open, evenly-grazed sward. A number of caravan sites are found on the margins of the site. Removal of sand and seaweed occurs at several locations, while some areas of saltmarsh are being reclaimed.

The site is of high ecological value for the occurrence of a wide range of coastal habitats, including areas of well-developed machair and sand dunes. It contains thirteen habitats that are listed, four with priority status, on Annex I of the EU Habitats Directive and, as such, is of considerable conservation significance. The presence of populations of several Annex I EU Birds Directive species adds to the overall importance of the site.

30.11.01

SITE SYNOPSIS

SITE NAME: WEST OF ARDARA/MAAS ROAD

SITE CODE: 000197

This extensive site occupies the area of coast immediately north of Ardara in south-west County Donegal. From there, it continues northwards around the coast, and then up the Gweebarra River to Doocharry. From the centre of the site an expanse of blanket bog extends south-east almost to Glenties. Lough Beg Bay and Slieve Tooey Mountain are adjacent and to the south-west of the site. The Owenea system and some of its tributaries including the Stracashel and Owengarve Rivers.

The site is of great ecological interest, with at least twenty-three habitats which are listed on Annex I of the E.U. Habitats Directive. The site is a candidate SAC selected for blanket bog, machair, fixed grey dunes, decalcified dune heath, decalcified *Empetrum* dunes, and Orchid-rich calcareous grassland, all priority habitats on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for lowland dunes with creeping willow, dune slack, marram dunes, large shallow inlets and bays, tidal mudflats, estuaries, Atlantic salt meadows, Mediterranean salt meadows, lowland oligotrophic lakes, alpine heath, dry heath, wet heath, *Molinia* meadows, lowland hay meadows, alkaline fens, Rhynchosporion, and Juniper scrub, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Slender Naiad, Freshwater Pearl Mussel, Marsh Fritillary, Petalwort, Atlantic Salmon, Common Seal, Geyer's Whorl Snail and Otter.

Most of the coastal parts of the site are underlain by metamorphic rocks, in particular Loughros Group and Upper Falcarragh Pelites, and Falcarragh limestone. More recent blown sand occurs over much of these coastal rocks, however. The majority of the inland part of the site is underlain by intrusive igneous Granodiorites.

The site exhibits a highly diverse range of both coastal and terrestrial habitats, this feature itself being of great scientific value.

The estuaries of the Gweebarra, Owentocker and Owenea Rivers form the most extensive habitat of the site. These have large expanses of intertidal sandflats which support a typical diversity of macro-invertebrate and algae species. The sandflats are fringed in places by saltmarsh vegetation. Wintering waterfowl frequent the estuaries, though in relatively small numbers and there is a resident population of Common Seal. The estuarine habitat merges with shallow marine waters. Onshore, sand dunes and machair have formed in a number of locations. In the dunes, Marram (*Ammophila arenaria*) is by far the most abundant plant species, although a range of herbs occurs, including Yarrow (*Achillea millefolium*) and Violets (*Viola* spp.). The areas of machair in this site are noted for their species richness and for the interesting vegetation transitions which are present. Orchids are especially evident and include

Fragrant Orchid (*Gymnadenia conopsea)*, Frog Orchid (*Coeloglossum viride*) and Marsh Helleborine (*Epipactis palustris*).

Lakes and associated wetlands in the site provide further habitat diversity. Of particular ecological interest is Sheskinmore, where there exists a partially sand-filled lagoon. This is generally of a calcareous nature, but receives an input of acidic water from the local igneous rocks, resulting in an unusual vegetation community. This area is of international importance for its bryophytes and also contains a high number of Stoneworts *(Chara* spp.), the latter reflecting the base-richness of the lake.

The blanket bog in the east of the site is one of the most extensive lowland and coastal bogs remaining in Donegal. The large number of lakes found there is a remarkable feature. Some of the lakes which are oligotrophic in character are colonised by aquatic plants - Pipewort (*Eriocaulon aquaticum*) and Quillwort (*Isoetes lacustris*) being of particular note. Much of the bog consists of gently undulating land vegetated mostly by Black Bog-rush (*Schoenus nigricans*), Bog Myrtle (*Myrica gale*), Purple moor-grass (*Molinia caerulea*), Heather (*Calluna vulgaris*), and Cottongrasses (*Eriophorum* spp.). Interconnecting pool systems on deep, quaking peat occur locally in the bogs. These very wet areas contain typical Rhynchosporion vegetation. Bog mosses, especially *Sphagnum cuspidatum* and *S. auriculatum* but also the rare *Sphagnum pulchrum,* are abundant in this vegetation, along with common plant species such as Bogbean (*Menyanthes trifoliata*), Common Cottongrass (*Eriophorum angustifolium*), White-beaked Sedge (*Rhynchospora alba*) and Sundew (*Drosera intermedia*).

Heath, scrub and woodland also occur in parts of the sites. Of these, the deciduous woodland in the Maas-Lettermacaward area is particularly noteworthy. Sessile Oak (*Quercus petraea*), Hazel (*Coryllus avellana*) and Downy Birch (*Betula pubescens*) are the dominant trees and the ground flora is well developed where undisturbed.

A number of rare plants have been recorded from this site. The Rare aquatic plant, Slender Naiad (*Najas flexilis*), a species which is protected under the Flora Protection Order, 1999, and which is listed on Annex II of the E.U. Habitats Directive, has been recorded from Sheskinmore Lough. Close by, the Hoary Whitlow Grass (*Draba incana*), which is listed in The Irish Red Data Book and is generally only found in the north-west, occurs. Irish Orchid (*Neotinea maculata)* has its only Irish record north of Connaught at this site. The Rare and protected Heath Cudweed (*Omalotheca sylvatica*), listed under the Flora Protection Order, 1999, has been recorded here.

The site supports populations of Common Seal, Freshwater Pearl-mussel, Salmon, Otter, the rare mollusc *Vertigo geyerii* and Marsh Fritillary, all species listed on Annex II of the E.U. Habitats Directive.

The site is also of importance to birdlife. In the past, Sheskinmore supported an internationally important flock of Barnacle Geese but nowadays the geese appear more or less confined to offshore islands, especially Roaninish and Inishkeel. In spring 2003 a total of 465 was on these islands. Similarly, numbers of Greenland White-fronted Geese at Sheskinmore have declined in recent years (seldom more than 50 birds), despite the continued presence of good habitat. The site is important for

breeding Merlin (estimated 5 pairs) and also has Peregrine (1 pair), while in winter Hen Harrier is a regular visitor (1-2 individuals). While Common Terns and/or Arctic Terns, as well as Sandwich Terns, have bred here in the past, no breeding by terns is known within the site since the mid 1990s. All of the above birds are listed on Annex I of the E.U. Birds Directive – other species listed on the Directive that may occur include Whooper Swan, Red-throated Diver, Corncrake and Chough. A nationally important Eider flock of some 500 birds winters around Inishkeel (22 counts, 5 seasons to 1987/88).

Land use is varied across the site, but the coastal portions are little used. Agricultural improvement and overgrazing threaten the terrestrial habitat, especially the dunes, machair and bog. Turf-cutting is quite active in the boglands. Part of the Sheskinmore area is a BirdWatch Ireland Reserve, while another section is owned by the National Parks and Wildlife Service. The whole Sheskinmore Lough area is a Wildfowl Sanctuary. Part of the area is protected by a management agreement.

This site is of considerable conservation value on account of the high level of habitat diversity. There are twenty-three habitats present which are listed under Annex I of the E.U. Habitats Directive, six of which have priority status. The presence of important populations of rare and threatened habitats, plants, animals and breeding and wintering birds makes this a site of high conservation value.

6.10.2006

SITE SYNOPSIS

SITE NAME: ROANINISH SPA

SITE CODE: 004121

This uninhabited site comprises a tight group of small, flat, low-lying islets surrounded by extensive intertidal rocks, situated in Gweebarra Bay, approximately 3 km north-west of Dunmore Head in Co. Donegal. The highest point is 9 metres above sea level. The surrounding seas to a distance of 200 m, where seabirds forage, bathe and socialise, are included within the site.

Much of the site is sparsely vegetated, with the exception of the main island, Roaninish, which supports lush maritime grassland. Two small ponds occur on Roaninish and support some aquatic species.

Roaninish is an important breeding site for several seabird species. A census in June 2000 recorded the following: Cormorant 36 pairs, Shag 6 pairs, Herring Gull 278 pairs, Great Black-backed Gull 29 pairs, Arctic Tern 11 pairs and Black Guillemot 19 individuals. The Herring Gull population is of National importance. Higher numbers of Arctic Terns have been recorded in the past, as well as some Common Terns and Little Terns. Roaninish is a long-established breeding site for Storm Petrel and in 2001 a total of 485 apparently occupied sites were estimated. Eider, a localised breeding species in Ireland, breeds in substantial numbers on the islands (up to 60 pairs have been recorded).

Roaninish is a wintering site for Barnacle Goose (320 individuals counted during a census in spring 1999). Birds are not always present, however, as they commute between various other sites in the vicinity, notably Inishkeel closer inshore and Sheskinmore on the mainland. This population of geese is of International Importance. Roaninish is also occasionally used for roosting at night by the flock (*c.* 50-60 individuals) of Greenland White-fronted Goose that feed at Sheskinmore on the mainland.

This site is of high ornithological importance owing to the breeding seabirds and wintering geese. Storm Petrel, Arctic Tern, Barnacle Goose and Greenland White-fronted Goose are listed on Annex I of the E.U. Birds Directive.

SITE SYNOPSIS

SITE NAME: WEST DONEGAL ISLANDS SPA

SITE CODE: 004230

West Donegal Islands SPA consists of a series of small to moderate-sized islands lying between 700 m and 3.5 km off the north-west coast of Co. Donegal. It includes the islands of Gola, Inishmeane, Inishsirrer (the three largest), Umfin, Go, Allagh, Torglass, Tornacolpagh and Tororragaun, as well as a number of smaller rocky islets. The islands are low-lying, the highest point being Knockaculleen on Gola (68 m). The site, which includes the intervening and surrounding seas to 200 m from the shorelines, is highly exposed to Atlantic swells. The predominant habitat of the islands is grassland, with both wet and dry types represented; small areas of dune grassland also occur. Small lakes occur on Inishsirrer and Gola. The rocky shorelines have areas of boulders, shingle and coarse sand, and grade into submarine reefs, which are common in the shallow surrounding seas. The islands are uninhabited other than some summer dwellings on Gola and Inishmeane.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Shag, Barnacle Goose, Corncrake, Common Gull and Herring Gull.

The West Donegal Islands SPA supports a nationally important wintering population of Barnacle Goose (272 individuals - four survey mean between 1993 and 2003). The birds use the islands for both feeding and roosting, though at times may commute to other islands off the Donegal coast, such as Inishkeeragh and Inishdooey.

The site supports a breeding population of Corncrake (13 pairs - five year mean peak between 2003 and 2007, based on records of calling males). The West Donegal Islands SPA is one of a suite of sites along the western seaboard that is regularly utilised by nationally important numbers of breeding Corncrake.

Corncrake winter in southern and eastern Africa, migrating northwards to arrive on their breeding grounds from early April onwards, departing again in August and September. They require the cover of tall vegetation throughout their breeding cycle and are strongly associated with meadows which are harvested annually, where they nest and feed. Annual cutting of these meadows creates a sward which is easy for the birds to move through. Other habitats, which can provide cover for Corncrake in the early and late stages of the breeding season, are also important for this species.

Corncrake is listed on the 2010 International Union for Conservation of Nature (IUCN) Red List of Threatened Species. This is due to population and range declines of more than 50% in the last 25 years across significant parts of its range.

The West Donegal Islands SPA also supports nationally important breeding populations of Shag (40 pairs on Gola Island in 1999 and 30 pairs on Inishsirrer in

2000), Common Gull (20 pairs on Gola Island in 1999 and 55 pairs on Inishsirrer and Inishmeane in 2000) and Herring Gull (65 pairs on Gola Island in 1999 and 25 pairs on Inishsirrer in 2000). Arctic Tern is known to nest on Inishsirrer and possibly at times on Inishmeane. Common Tern may also be present; a total of 25 pairs were present in the 1995 National Tern Survey.

The West Donegal Islands SPA is of high ornithological importance as it supports a nationally important population of Corncrake, a globally threatened species. The site also supports nationally important populations of wintering Barnacle Goose and breeding Shag, Common Gull and Herring Gull. Also of note is that three of the regularly occurring species are listed on Annex I of the E.U. Birds Directive, i.e. Barnacle Goose, Arctic Tern and Corncrake.

Appendix 2

NPWS letter

Date: 29/07/2013
Our Ref: DAU to provide

Michael Gallagher,
Oilean Glas Teo,
Ballymoon Ind. Estate,
Kilcar,
Co Donegal,
IRELAND.
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Re: Harvesting of seaweed (*Ascophyllum nodosum*) by *Oilean Glas Teo* **from coastal sites around County Donegal, including Trawenagh Bay, Dunglow Bay, Lough Swilly, Mulroy Bay and Trawbreaga Bay.**

A Chara,

Further to your meeting and site visit with the National Parks and Wildlife Service on the 11th July 2013 in relation to the above proposal. Outlined below are the nature conservation observations/recommendations of the Department of Arts, Heritage and the Gaeltacht.

It is noted that seaweed harvesting presently occurs along the shoreline between Trawenagh Bay and Dungloe Bay. As the business expands and to maintain reliability and sustainability of the supply of seaweed, it is also proposed to investigate harvesting at sites within Lough Swilly, Mulroy Bay and Trawbreaga Bay. The Foreshore Unit in the Department of the Environment, Community and Local Government (Newtown Road, Wexford) is the competent authority for regulating these activities. A Foreshore Licence will be required from the Foreshore Unit for the seaweed harvesting. As the competent authority, please ensure that they are fully consulted regarding correspondences with this Department.

It is noted that the proposed seaweed harvesting is partially situated within and in a location likely to impact on the Rutland Island and Sound Special Area of Conservation Site No. SAC 002283, the Lough Swilly Special Area of Conservation Site No. SAC 002287, the Lough Swilly Special Protection Area Site No. SPA 004075, the Mulroy Bay Special Area of Conservation Site No. SAC 002159, the North Inishowen Coast Special Area of Conservation Site No. SAC 002012 and the Trawbreaga Bay Special Protection Area Site No. SPA 004034. It is also noted that the proposed harvesting is situated in a location with the potential to impact on the Griers Isle Special Protection Area Site No. SPA 004082, and the Horn Head to Fanad Head Special Protection Area Site No. SPA 004194. Please see the site synopses at www.npws.ie for a description of the sites.

We are of the view that the proposed development:

- could significantly damage/destroy marine and coastal habitats, including mudflats and sandflats not covered by seawater at low tide, large shallow inlets and bays, and estuaries, all of which are habitat types listed in Annex I of the EU Habitats Directive (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora);
- could significantly damage/destroy other marine habitats and species, including Otter (*Lutra lutra*) and Common Seal (*Phoca vitulina*), both of which are species listed in

Annex II of the EU Habitats Directive (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora). Please note that Otter is also listed in Annex IV of the EU Habitats Directive. Any proposal that would be likely to cause impact on the breeding or resting habitat of this species, would directly contravene Regulation 51 of the European Communities (Birds and Natural Habitats) Regulations, 2011 and the judgement against Ireland of the European Court of Justice in case C-183/05;

- could significantly interfere with populations of migratory and breeding bird species including Whooper Swan (*Cygnus Cygnus*), Greylag Goose (*Anser anser*) and Greenland White-fronted Goose (*Anser albifrons flavirostris*), Light bellied Brent Goose (*Branta bernicla hrota*), Barnacle Goose (*Branta leucopsis*), Chough (*Pyrrhocorax pyrrhocorax*) and Sandwich Tern (*Sterna sandvicensis*). Please note that Whooper Swan, Greenland White-fronted Goose, Barnacle Goose, Chough and Sandwich Tern, are all species listed in Annex I of the EU Birds Directive (Council Directive 79/409/EEC);

The potential impacts would be caused by the:

- Direct loss of habitat i.e. removal of seaweed from the Natura 2000 sites;
- Damage/Destruction to flora and fauna species directly associated with the seaweed *Ascophyllum nodosum*;
- Damage/Destruction to adjacent habitats due to inappropriate harvesting and seaweed removal techniques;
- Disturbance to local wildlife, including marine mammals and breeding/wintering avifauna, due to the proposal.

The Department recommends that the ecological assessment of your proposal should address the potential impacts to the habitats and species listed above. Baseline information regarding these habitats and species may be available from the National Parks & Wildlife Service (www.npws.ie), National Biodiversity Data Centre (www.biodiversityireland.ie), the Marine Institute (www.marine.ie) and BirdWatch Ireland (www.birdwatchireland.ie). Information from the National Parks & Wildlife Service should be sourced via the Data Request Form at www.npws.ie . The ecological assessment should include robust measures that will avoid, reduce and mitigate for any significant impacts to nature conservation.

As the project that has the potential to significantly impact on the integrity of a number of Natura 2000 sites, an Appropriate Assessment as outlined in Article 6(3) of the EU Habitats Directive (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora) will be required as part of the Foreshore Licence assessment process. The Appropriate Assessment will focus on the potential impacts in view of the site's conservation objectives (Qualifying Interests/Special Conservation Interests), and your ecological assessment should include measures that will avoid, reduce and mitigate for any such impacts. Potential impacts must be considered in combination with other plans or projects, including other seaweed harvesting and foreshore development. The Appropriate Assessment must establish and conclude that the proposed development does not pose a significant threat to the conservation objectives of the Natura 2000 sites, if the proposal/project is to proceed. Guidance on the preparation of an Appropriate Assessment is available at www.npws.ie (see Planning and Appropriate Assessment, Department of the Environment, Heritage & Local Government (2009): Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities).

As outlined at the meeting of the 11th July 2013, ***Oilean Glas Teo*** is developing a sustainability programme/plan for managing the seaweed harvesting sites. The Departments believes that such a plan would be essential as a mitigation measure for the proposal and for demonstrating if the proposed development does not pose a significant threat to the conservation objectives of the Natura 2000 sites. The Department recommends that the sustainability programme should consider following measures:

- Best practice for harvesting. From the meeting of the 11th July 2013, it is noted that all harvesting will be done by the traditional methods i.e. hand cutting;
- The lower level for the recommended biomass removal is observed within the Natura 2000 sites;
- 10-20% of the potential harvesting areas are retained with no harvesting/interference;
- Harvesting sites are generally small and relatively dispersed;
- Harvesting is done on a rotation which enables full recovery of the *Ascophyllum nodosum*, and associated flora and fauna;
- Important birds areas are avoided during the breeding/wintering period;
- Defined access roué, which avoid sensitive areas.
- Etc.

Kindly forward any further information to the following address:

The Manager,
Development Applications Unit,
Department of Arts, Heritage and the Gaeltacht,
Newtown Road,
Wexford.

Mise le meas,

_____
(name)
Development Applications Unit