Screening Statement for Appropriate Assessment

Hand Harvesting of Seaweed at

Easkey Strand, Co. Sligo.

Produced by

AQUAFACT International Services Ltd

On behalf of

Celtic Seaweed Bath Products Ltd. and

Celtic Seabaths Ltd.

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AQUAFACT INTERNATIONAL SERVICES LTD.

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1. Introduction

This Screening Statement for Appropriate Assessment (AA) has been prepared by AQUAFACT International Services Ltd. (AQUAFACT) on behalf of Celtic Seaweed Bath Products Ltd. and Celtic Seabaths Ltd. Celtic Seaweed Bath Products Ltd. and Celtic Seabaths Ltd. are referred to hereafter as Voya Seaweed. This report has been prepared to accompany an application by Voya Seaweed for statutory approval to harvest two species of seaweed at Easkey Strand, Co. Sligo.

The proposed target species are serrated wrack *Fucus serratus* and oarweed *Laminaria digitata*. It is proposed that the seaweed species will be harvested by hand at low tide at 8 no. proposed harvest zones (or areas) along the shore at Easkey. The 8 no. proposed harvest areas are shown in **Figure 1.1**. It is proposed that the harvested seaweed will be used in cosmetic products and seaweed baths.

This Screening Statement for AA is, in part, informed by a seaweed biomass assessment at Easkey Strand that was undertaken by AQUAFACT on behalf of Voya Seaweed in May 2021. The full survey report is included in **Appendix A** below.

Figure 1.1: Proposed seaweed harvest areas. The proposed harvest areas are labelled 1 through 8.

Figure 1.2: Harvest area.

Figure 1.3: Harvest area.

1.1. Requirement for Appropriate Assessment

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

Articles 3 - 11 of the Directive provide the legislative means to protect habitats and species of Community interest through the conservation of an EU-wide network of protected sites known as Natura 2000 sites.

Under Article 6(3) of the Habitats Directive any plan or project likely to significantly affect the integrity of a Natura 2000 site must be subject to an AA. AA focuses on the likely significant effects of a plan or project on a Natura 2000 site and considers the implications for the site in view of its' conservation objectives. Every Natura 2000 site has Conservation Objectives which are set out by the National Parks and Wildlife Service (NPWS), a competent authority for the management of Natura 2000 sites in Ireland. The AA process also must consider any plan or proposal in combination with other activities that have the potential to significantly affect the integrity of the Natura 2000 site.

Under Article 6(3) and 6(4) of the Habitats Directive competent authorities are required to conduct a screening for Appropriate Assessment (AA) and, if necessary, an AA on any plan or project for which it receives an application for consent, or which the authority itself wishes to undertake or adopt.

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

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

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

A network of sites of conservation importance hosting habitats and species as needing to be either maintained at or, where appropriate, restored to favourable conservation status have been identified by each Member State. Sites, species, and habitats protected under Directive 92/43/EEC (Habitats Directive) and Directive 2009/147/EC (Birds Directive) are referred to as Natura 2000 sites. Natura 2000 sites are referred to as European sites in the 2011 Birds and Natural Habitats Regulations. The terms Natura 2000 sites and European sites are synonymous. The term Natura 2000 sites is used in this report. Natura 2000 sites in Ireland that form part of the Natura 2000 network include Special Area of Conservation (SACs) which are designated under the Habitats Directive and Special Protected Areas (SPAs) which are designated under EC Directive EC 79/409/EEC (Birds Directive).

SACs are designated due to their significant ecological importance for habitats and species protected under Annex I and Annex II respectively of the Habitats Directive and while SPAs are designated for the protection of populations and habitats of bird species protected under the Birds Directive. The specific named habitats and/or (non-bird) species for which an SAC or SPA are selected are called the

'Qualifying Interests' (QI), of the site (OPR, 2021[1]). The specific named bird species for which a SPA is selected is called the 'Special Conservation Interests' (SCIs). However, in practice, the common terminology of Qualifying Interests applies also to SCIs. In this report, the term Qualifying Interest is used throughout.

1.2. Appropriate Assessment Process

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

No definition of the content or scope of AA is given in the Habitats Directive, but the concept and approach are set out in EC guidance (EC 2000, 2002, 2006, 2018). Guidance on *Appropriate Assessment of Plans and Projects in Ireland* published by the Department of Environment, Heritage and Local Government (**DEHLG**) in 2009 (DEHLG, 2009[2]). The guidance sets out how AA of plans or proposals in Natura 2000 sites in Ireland should be carried out in alignment with EC guidance. In 2021 the Office of the Planning Regulator (**OPR**) published a practice note on AA Screening (OPR, 2021). The practice note provides guidance on how a planning authority should screen an application for planning permission for appropriate assessment.

DEHLG (2009) promotes a staged 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 stages of the AA process are shown in **Figure 1.4** below.

Figure 1.4: AA Stages

The first two stages of the AA process, Stage 1 AA Screening and Stage 2 AA, deal with the main requirements for assessment under Article 6(3). The key procedures involved in completing the first two stages of the AA process are described in **Section 1.2.1** and **Section 1.2.2** below.

Stage 3 may be part of the Article 6(3) Assessment or may be a necessary precursor to Stage 4.

Stage 4 is the main derogation step of Article 6(4).

1.2.1. Stage 1: Appropriate Assessment Screening

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

i. whether a plan or project is directly connected to or necessary for the management of European site, and

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

[2] DEHLG (2009) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities. Environment, Heritage and Local Government https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf

ii. Whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a European site in view of its conservation objectives.

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

The Screening for AA is performed by the competent authority based on the information included in the Screening for AA and any other information considered necessary to reach a conclusion regarding likely significant effects associated with the proposed plan or project.

In the light of the conclusions of the screening assessment of the implications for the site(s), the competent authorities shall agree to the plan or project only after having ascertained that it will not result in likely significant effect to the site(s) concerned.

1.2.2. Stage 2: Appropriate Assessment

This stage considers whether the plan or project, alone or in combination with other projects or plans, will have adverse effects 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 (NIS) that examines the plan or project and the relevant European sites, to identify and characterise any possible implications for the sites in view of the site's conservation objectives, taking account of in-combination effects. This should provide information to enable the competent authority to carry out the appropriate assessment. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must proceed to Stage 3, or the plan or project should be abandoned.

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

An AA is performed by the competent authority based on the information included in the NIS and any other information considered necessary to ascertain whether the project will have an adverse effect on the integrity of the Natura 2000 site(s). This process and the conclusions should be clearly documented.

In the light of the conclusions of the assessment of the implications for the site(s) and subject to the provisions of Habitats Directive Article 6(3), the competent authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site(s) concerned.

1.3. Purpose of This Report

This Screening Statement for AA has been prepared to address Article 6(3) obligations under the Habitats Directive and to inform the AA determination of the competent authorities. Specifically, this Screening Statement for AA focuses on the potential effects of the proposed activities to Natura 2000 sites.

1.4. Guidance

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

- EC (2018) Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC Commission Notice (2018).

- OPR (2021) Appropriate Assessment Screening for Development Management. Practice Note PN01. Office of the Planning Regulator. March 2021.
- DEHLG (2009) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities (Revised 2010).
- DAHG - NPWS (2012) Marine Natura Impact Statements in Ireland Special Areas of Conservation, A Working Document.
- EC (2001) Managing Natura 2000 Sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC.

1.5. Statement of Authority

This report has been prepared by Dr. James Forde (B.Sc., M.Sc., Ph.D., MCIEEM) and Caoimhe Tweedy (B.Sc., M.Sc.).

Dr. James Forde has a PhD in Marine Ecology and is a full member of the CIEEM. James has over fifteen years' experience in marine research and environmental consultancy. James specialises in marine ecology and has a full appreciation of the objectives and mechanisms of national and international environmental legislation and policy.

James' academic research has focused on benthic habitats and communities, and techniques used to assess ecological impacts under European environmental legislation including the Habitats Directive and the Water Framework Directive.

As part of James' consultancy work, he has delivered assessment reports to meet the provisions of the Habitats Directive and EIA Directive to accompany planning applications for a wide range of developments including pier enhancement projects, coastal defence projects, energy infrastructure and aquaculture.

James was a member of the International Union for Conservation of Nature (IUCN) expert working group for marine red-list habitats for the North Atlantic and has collaborated with international experts on the designation of sensitive marine habitats including *Ostrea edulis* beds, *Mytilus edulis* beds, seagrass meadows and offshore biogenic and geogenic reef habitats. James has collaborated with national experts on the assessment of deep-water reef habitats in Irish waters to support Ireland's national assessment of reef as required under Article 17 of the Habitats Directive. Recently James has also worked with national experts on the classification of lagoon habitats, a Habitats Directive Annex I priority habitat.

Caoimhe Tweedy holds a BSc (Hons) in Marine Science from the National University of Ireland, Galway and an M.Sc. in Marine Biology from University College Cork. Caoimhe is an experienced Ecologist working with AQUAFACT since 2019 months. Caoimhe has worked on a wide variety of projects including marine related projects with a focus on aquaculture, energy infrastructure and more recently terrestrial based projects including Strategic Housing Developments and small-scale energy infrastructure. Caoimhe has knowledge of E.U Directives and associated nation legislation in particular the Habitats Directive and the Birds Directive.

1.6. Structure of this Report

The content of this report is as follows:

- **Section 2:** Screening for Appropriate Assessment
  - **Section 2.1** Project Description
  - **Section 2.2** Potential Impacts
  - **Section 2.3** Appropriate Assessment Screening Assessment Criteria
  - **Section 2.4** Screening Outcome

2. Stage 1: Screening for Appropriate Assessment

Under the 2011 Birds and Natural Habitats Regulations all competent authorities are required to conduct a screening for AA and, if necessary, an AA on any plan or project for which it receives an application for consent including those projects on the foreshore. The obligation to undertake AA the 2011 Birds and Natural Habitats Regulations derives from Article 6(3) and 6(4) of the Habitats Directive. Regulation 42 (1) of the 2011 Regulations requires that:

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

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

As outlined in **Section 1.1**, this Screening Statement for AA, which has been prepared with regard to Article 6(3) obligations of the Habitats Directive and associated national regulations, focuses on the potential effect to Natura 2000 sites associated with the proposed activities. **Section 2.1** below describes the proposed project while **Section 2.2** considers the likelihood of significant effects of the harvesting project. The AA screening matrix (presented in **Section 2.3**) considers the likelihood of significant effects of the project on Natura 2000 sites both in isolation and in combination with other projects.

2.1. Project Description

2.1.1. Harvesting Activities

Voya Seaweed propose to harvest by hand two seaweed species (serrated wrack *Fucus serratus* and oarweed *Laminaria digitata*) at Easkey Strand, Co. Sligo for use in cosmetic products and seaweed baths. The harvesting areas are shown in **Figure 1.1**. Hand harvesting will be undertaken within harvest areas above the low water line. The natural upper and lower extent of the *Fucus serratus* band at the harvesting areas are shown in **Figure 2.1** and **Figure 2.2**. The figures also show the natural upper extent of the *Laminaria digitata* band at the harvest areas. The lower extent of the *Laminaria digitata* band indicated in **Figure 2.1** and **Figure 2.2** is the low water mark, above which harvesting will occur.

The hand harvesting operations will target the most mature clumps of seaweed for harvest. This will allow a substantial handful to be harvested from each seaweed. The seaweed will be cut approximately 8 – 10 cm above the holdfast with clean knives. The seaweed cut free will be placed into clean barrels. Cutting 8 – 10 cm above the holdfast will allow the seaweed to re-grow ensuring a sustainable harvest. Cut approximately

Laminaria digitata should be intact, free of holes and be over 3 feet in length.

Fucus serratus should be intact and contain numerous branches.

For each harvest event there is a seaweed batch intake log. The log will note when and where the seaweed was harvested, detailing the harvest area and dates. The logs will be used inform future

harvesting events and ensuring that the seaweeds have ample time to recover and regrow before being harvested again.

Voya Seaweed's projected annual harvesting at the shoreline is:

- 27,200kg (27.2 tonnes) of wet *Fucus serratus* will be harvested for use in cosmetics;
- 30,500kg (30.5 tonnes) of wet *Fucus serratus* will be harvested for seaweed baths; and
- 12,000kg (12.0 tonnes) of wet *Laminaria digitata* will be harvested for use in cosmetics.

Annual seaweed harvesting will be distributed across the 8 no. harvesting sites.

2.1.2. Seaweed Biomass Assessment

AQUAFACT was commissioned by Voya Seaweed to carry an assessment of the *Fucus serratus* and *Laminaria digitata* biomass at harvest areas at Easkey. The full survey report is presented in **Appendix A**. The biomass survey was carried was carried out during spring low tides on the 25th and 26th of May 2021. **Figure 2.1** and **Figure 2.2**. show the coverage of the species in each harvesting areas.

The standing biomass tonnage (tonnes wet weight) for the species at 8 no. harvest areas above the low water mark were calculated based on the coverage of each species in the areas (m^2) and estimates of their average biomass of the species at the harvest areas (kg/m^2). Table 2.1 shows the calculated standing tonnages of the species at the harvest areas. The 8 no. harvest areas were estimated to support a total of 15,981.2 tonnes of *Fucus serratus* and 18,545.5 tonnes of *Laminaria digitata*.

Table 2.1: Seaweed tonnages for each harvest area (tonnes).

Species	Harvest areas								Total Biomass (tonnes)
	1	2	3	4	5	6	7	8	
Fucus serratus	1,210.3	3,276.6	2,047.5	1,195.2	2,657.5	2,537.7	2,139.1	917.3	**15,981.2**
Laminaria digitata	2,494.0	2,011.2	942.8	3,676.7	3,567.2	1,882.9	0	3,970.7	**18,545.5**

2.1.3. Annual Harvest Volumes

As outlined in **Section 2.1** above Voya Seaweed intend to harvest annually 57.7 tonnes of *Fucus serratus* and 12 tonnes of 18,545.5 of *Laminaria digitata* across the 8 no. harvest areas. Respectively, these harvest figures equate to approximately ~ 0.4% and 0.1% of the standing biomass of *Fucus serratus* and *Laminaria digitata* at the harvest areas.

2.2. Potential Impacts

2.2.1. Overview

Removal of *Fucus serratus* and *Laminaria digitata* from the rocky substrate will result in some level of disturbance impacts at the harvest site. However, the level if impact would be minor given the small scale of harvesting proposed. The proposed harvesting is sustainable due the small volumes of biomass that will be removed and the high fecundity of the harvest species and their capacity for dispersal, recovery at the sites would be high.

2.2.2. Removal of target and non-target species

Seaweeds are important for promoting biodiversity as it provides substrate and shelter for various fauna and flora species. Seaweed beds also provide an important habitat for juvenile fish by providing them with a food source and with shelter and protection. The removal of the seaweed will result in the loss of habitat refugia and reduction in species in particular epibionts. Provided the entire plant is not removed entirely the algae can regenerate from the remaining stem. Recovery would be high due to the high fecundity of the seaweed species and its widespread distribution and capacity for dispersal. Regeneration and recruitment of the *Fucus serratus* and *Laminaria digitata* seaweed in the harvested areas will occur through reproduction of the remaining population or from neighbouring plant populations and associated flora and fauna assemblages. As some of the seaweed population will remain it is unlikely that other species of flora and fauna will also remain. Removal of some of the adult canopy will allow the understory germlings to grow faster. Recovery will probably have occurred after one to two years.

2.2.3. Uncovering of previously hidden fauna

Harvesting of seaweed will uncover previously hidden invertebrates such as winkles Littorina spp., whelks Nucella spp., *Gibbula umbilicalis*, limpets *Patella 9vulgata* and shore crabs thus increasing their availability as prey items. Mobile fauna such as crabs will quickly move to alternative nearby refugia, before predators such as otter will approach *i.e.* before the harvesters have left the area. Gastropods such as Littorina spp. And Nucella spp. However, will remain stationary until the shore is inundated by the incoming tide in which time they may be predated on by bird. Given the areas that will be harvested relative to the areas available, significant impacts will not occur.

2.2.4. Removal of nutrients

Removal of seaweed will result in the removal of nutrients such as nitrogen and phosphorus from the system, due to the harvested seaweed not being available to biodegrade at the end of its life cycle. However, any significant negative impacts from the removal of too many nutrients from the system will not occur due to the sustainable percentage of seaweed that will be removed, the distribution of harvesting across all harvest areas, and natural nutrient replenishment which will occur from marine waters of the Atlantic Ocean, B) from human activity in and around the area, such as from domestic sewage, agriculture and from industry and C) natural recycling of nutrients from the decomposition of naturally occurring organic material.

2.2.5. Trampling

Harvesters will walk on the shore to cut and collect the seaweed and some trampling will occur. However, the amount of pressure exerted by one or two harvesters walking on the shoreline will be extremely low. The effect of this pressure particularly on hard substrates such as rocky shores where the target species grow will also be extremely low.

2.2.6. Trampling due to access

Trampling of sensitive species and habitats could occur if harvesters transverse through these sensitive habitats while gaining access to/from the shore. However, the pressures exerted by one or two harvesters will be extremely low.

2.2.7. Reduction in dampening effect

Removal of seaweed could reduce the “dampening effect” the seaweed has on erosion caused by wave action. The force of wave action and hence the rate of erosion varies depending on the level of exposure of a shore and the shore substrate. Hard sediment such as rock, on which the seaweed grows is significantly less susceptible to coastal erosion than soft sediment shores. The volume of seaweed that will be harvested is small and will not significantly reduce the dampening effect.

2.2.8. Disturbance

The presence of harvesters on the shore has the potential to disturb sensitive species such as breeding birds and mammals such as otter. However, given the limited time during which activity will be occurring at the harvest sites and considering the limited spatial extent of the harvest sites relative to the greater area at Easkey available to the species, it can be concluded that significant disturbance to sensitive species will not occur.

2.2.9. Conclusion

Given the nature and scale of the proposed harvesting activity, it can be concluded that the harvesting activities will not have a long-term significant effect on the ecology of the harvest areas.

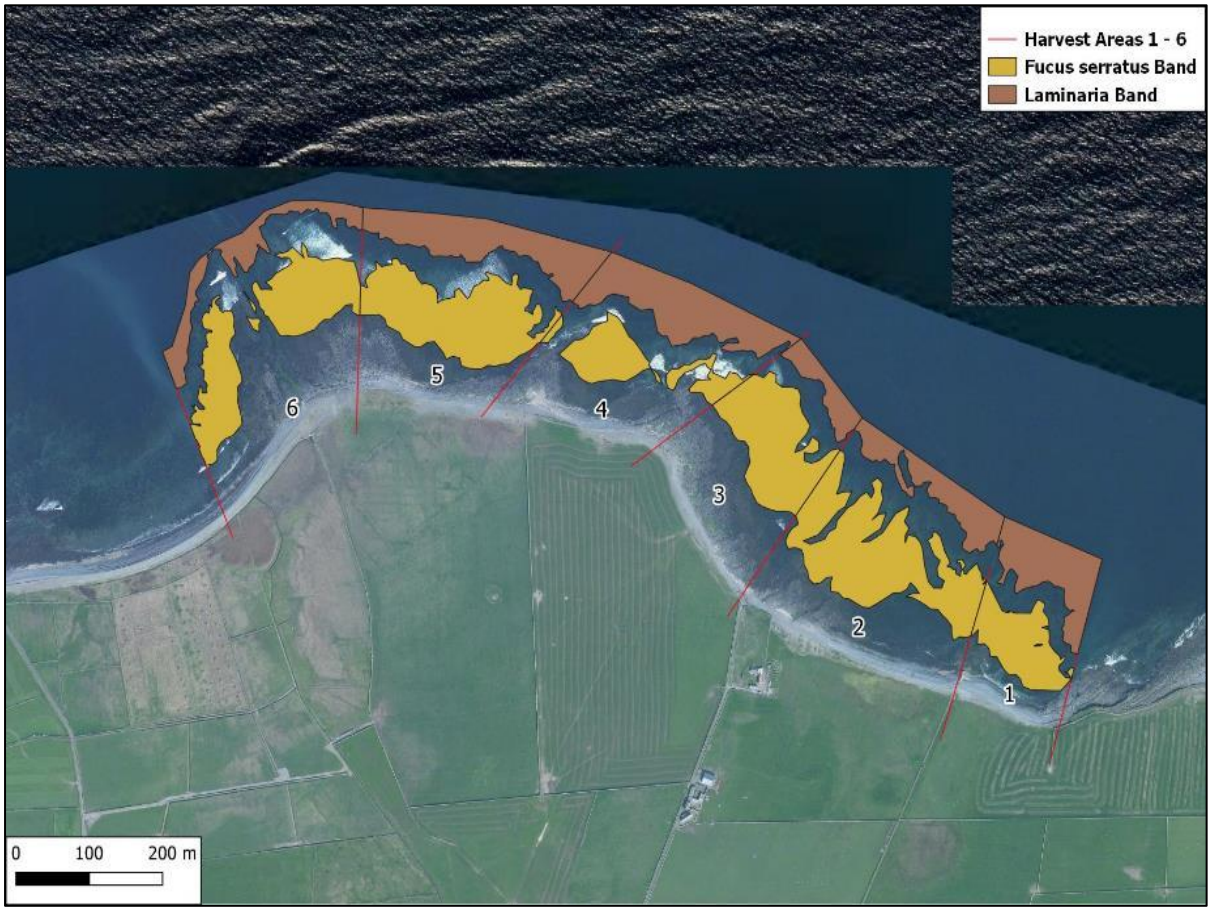

Figure 2.1: Target seaweed species coverage in harvest areas 1 – 6.

Figure 2.2: Target seaweed species coverage in harvest areas 7 and 8.

2.3. Appropriate Assessment Screening Assessment Criteria

A key factor in the consideration as to whether or not a QI of a SAC or a SCI of a SPA is likely to be affected by a proposed project is the existence of connectivity (or interaction/ or impact pathway) between the designated feature and the impact mechanisms associated with the project.

National guidance (DEHLG 2009) states that screening for AA should be carried out for any European site within the likely 'Zone of Impact' of a plan or project. For projects, the guidance outlines that the Zone of Impact must be evaluated on a case-by-case basis.

Here the evaluation of the Zone of Impact considered the potential for effects of the proposed development to Qualifying Interests within (*in-situ* effects) and outside (*ex-situ* effects) Natura 2000 sites, with reference to the nature, size and location of the project, its location in relation to individual Natura 2000 and the Conservation Objectives defined for their Qualifying Interests, and with reference to the sensitivities of the receptors, and the potential for in-combination effects.

The AA screening matrix (presented in **Table 2.2**) considers the likelihood of significant effects of the project on Natura 2000 sites both in isolation and in combination with other projects. The findings of the assessment are summarised below.

Given the nature and scale of the proposed harvesting activity, and the distance to the harvest areas from designated Natura 2000 sites, it can be concluded that the harvesting activities will not have in-situ effects on designated Natura 2000 sites – there are no impact pathways and effects are screened out.

There is potential that highly mobile protected Qualifying Interest species of distant Natura 2000 sites may occur in the project area; consequently, ex-situ effect must be considered. Given the scale of the proposed project, there is low likelihood that protected species from distant Natura 2000 sites occurring within the zone of impact of project. If protected species from distant Natura 2000 sites were to occur within the project zone of impact, the number of individuals present would be low; consequently, it can be concluded that there will be no significant ex-situ effects on Qualifying Interests.

Table 2.2: Screening matrix

Screening Matrix	
Brief description of the project or plan	A detailed description of the proposed Voya Seaweed project is provided in **Section 2.1**. The activities comprise the hand harvesting two seaweed species (*Fucus serratus* and *Laminaria digitata*) at Easkey Strand, Co. Sligo for use in cosmetic products and seaweed baths.
Natura 2000 site(s)	
Brief description of the Natura 2000 site(s)	Given the nature and scale of the proposed harvesting activity, and the distance to the harvest areas from designated Natura 2000 sites, it can be concluded that there harvesting activities will not have a significant effect on designated Natura 2000 sites – there are no impact pathways and effects are ruled out.
Assessment Criteria	
Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site.	Voya Seaweed propose to harvest by hand 27,200kg of wet *Fucus serratus* will be harvested from the shoreline for cosmetics, 30,500kg of wet *Fucus serratus* will be harvested for seaweed baths and 12,000kg of wet *Laminaria digitata* will be harvested from the shoreline for use in cosmetics. The activity proposed is the sustainable harvesting seaweed by hand from the shoreline Easkey, the removal of seaweed biomass at the harvest area will not impact the ecology at Easkey. There is no potential for effects to Qualifying Features of the Natura 2000 sites – significant effects to QIs and SCIs were screened out.
Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of Size and scale, Land-take.	
Distance from the Natura 2000 site or key interests of the site;	The areas proposed for seaweed harvesting do not form part of Natura 2000 sites and there is no spatial overlap between the site and the Natura 2000 sites. The closest Natura 2000 sites to the harvesting area Killala Bay/Moy Estuary SAC (Site code: 000458) and Killala Bay/Moy Estuary SPA (Site code: 004036). The sites are located over 11km from the proposed harvesting areas. Given the nature and scale of the proposed harvesting activity, and the distance to the harvest areas from designated Natura 2000 sites, it can be concluded that will be no significant in-situ or ex-situ effects on designated Natura 2000 sites.
Resource requirements (water abstraction *etc.*);	Seaweed will be harvesting will be done by hand.

Assessment Criteria	
Emissions (disposal to land, water or air);	The harvesting areas will be accessed by foot as access to the site doesn't allow any vehicles entering. The risk of noise, pollution at the harvest area is non-existent Minor atmospheric and noise emissions from trucks used to transport harvested seaweed. Insignificant risk of chemicals or other waste material pollution during transportation.
Excavation requirements; Transportation requirements;	***Excavation requirements*** No excavation will take place ***Transportation requirements*** Harvested seaweed be taken from site using trucks using the existing local road network, with no impact on the Natura 2000 sites.
Duration of construction, operation, Decommissioning Other.	***Construction*** No construction will be taking place. ***Operation*** Hand removal of seaweed from the shore. ***Decommissioning*** The project does not include any construction of infrastructure - no decommissioning is required.
Describe any likely changes to the site arising as a result of: Reduction in habitat area; [N/A] Disturbance to key species; Habitat or species fragmentation; Reduction in species density; Changes in key indicators of conservation value (water quality *etc*.); Climate change	It is concluded that there is no potential likelihood for significant effects caused by the harvesting activities on the following aspects of SACs and SPAs: • Reduction in habitat area • Disturbance to key species • Habitat or species fragmentation • Reduction in species density • Water quality With regard effect to climate change, the main source of atmospheric emissions will result from transportation of the seaweed from the harvest site. Given the scale of activities, significant effect on climate from atmospheric emissions can be screened out.
Describe any likely impacts on the Natura 2000 site as a whole in terms of: Interference with the key relationships that define the structure of the site; Interference with key relationships that define the function of the site.	No potential likelihood for significant effects caused by the harvesting activities on the structure or function of Natura 2000 sites.
Provide indicators of significance as a result of the identification of effects set out above in terms of: Loss; Fragmentation; Disruption; Disturbance; Change to key elements of the site.	No potential likelihood for significant effects on Natura 2000 sites.

Assessment Criteria	
Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	The assessment of potential in combination effects considers aspects of the project that in combination with other plans and project may result in significant effects. To inform the assessment of potential in combination effects a review of consent applications for projects in the vicinity of the proposed activities included on the following web-sites was completed in August 2021: • Department of Housing, Planning and Local Government (DHPLG) - Foreshore Consenting http://www.housing.gov.ie/planning/foreshore/foreshore-consenting • DHPLG - EIA Portal https://www.housing.gov.ie/planning/environmental-assessment/environmental-impact-assessment-eia/eia-portal • Sligo County Council - Planning Systemhttps://www.sligococo.ie/planning/ • An Bord Pleanála – Strategic Infrastructure Development (SID) Portal http://www.pleanala.ie/lists/2020/sid/index.htm It was concluded that there is no potential likelihood for significant effects from the proposed project in combination with other plans or projects.

2.4. Screening Outcome

The screening assessment investigates the potential for the proposed activities to have significant effects on Natura 2000 sites within the Natura 2000 network.

The assessment has determined, in light of best available scientific data, that there is no potential for significant effects on Natura 2000 sites.

The assessment also determined that there is no potential likelihood for significant effects from the proposed activities in combination with other plans or projects.

Given the nature and scale of the proposed harvesting activity, and the distance to the harvest areas from designated Natura 2000 sites, it can be concluded that there harvesting activities will not have a significant effect on designated Natura 2000 sites - there are no impact pathways and effects are ruled out.

3. References

DAHG NPWS (2012) Marine Natura Impact Statements in Ireland Special Areas of Conservation, A Working Document. https://www.npws.ie/sites/default/files/general/Marine%20Assessment%20Working%20Document.pdf

DEHLG (2009) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities (Revised 2010). https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf

EC (2018) Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC Commission Notice (2018). https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/EN_art_6_guide_jun_2019.pdf

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OPR (2021) Appropriate Assessment Screening for Development Management. Practice Note PN01. Office of the Planning Regulator. March 2021. https://www.opr.ie/wp-content/uploads/2021/03/9729-Office-of-the-Planning-Regulator-Appropriate-Assessment-Screening-booklet-15.pdf

Appendix A
Survey Report

Seaweed Biomass Survey at

Easkey, Co. Sligo

Prepared by

AQUAFACT International Services Ltd

On behalf of

Celtic Seaweed Bath Products Ltd. and

Celtic Seabaths Ltd.

September 2021

AQUAFACT INTERNATIONAL SERVICES LTD.,

[redacted]

Report Approval Sheet

Client	Celtic Seaweed Bath Products Ltd. and Celtic Seabaths Ltd.
Report Title	Seaweed Biomass Survey at Easkey, Co. Sligo
Job Number	JN1660
Report Status	Draft
Issue Date	09/09/2021

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AQUAFACT

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1. Introduction

Celtic Seaweed Bath Products Ltd. and Celtic Seabaths Ltd. (referred to herein as Voya Seaweed) have applied for a licence to harvest two species of seaweed at Easkey Strand, Co. Sligo. The proposed target species are serrated wrack *Fucus serratus* and oarweed *Laminaria digitata*. It is proposed that the seaweed species will be harvested by hand at low tide at eight proposed harvest zones (or areas) along the shore at Easkey. The 8 no. proposed harvest areas are shown in **Figure 1.1**. It is proposed that the harvested seaweed will be used in cosmetic products and seaweed baths.

To inform the licence application Voya Seaweed commissioned AQUAFACT International Services Ltd. (AQUAFACT) to conduct seaweed biomass assessments at the proposed harvest areas.

Figure 1.1: Proposed seaweed harvest areas. The proposed harvest areas are labelled 1 through 8.

2. Methodology

The biomass surveys were carried out during spring low tides on the 25th and 26th of May 2021 and comprised a series of walkover and quadrat surveys.

2.1. Walkover Survey and Seaweed Coverage Estimates

A walkover survey was carried out along the 8 no. proposed harvest areas. The upper and lower extent of the *Fucus serratus* bands and the upper extent of *Laminaria digitata* band were marked out using a GPS tracker. The lower extent of the *Laminaria digitata* band for the purposes of the licence, ends at the low water mark. **Figure 2.2** and **Figure 2.3** show the *Fucus serratus* and *Laminaria digitata* at the harvest areas. *Fucus serratus* and *Laminaria digitata* coverage (in m^2) within the band were estimated.

Table 2.1: Seaweed coverage at each harvest area (m^2).

Species/ Harvest area	1	2	3	4	5	6	7	8
Fucus serratus	95.3	258.0	161.2	94.1	209.3	199.8	168.4	72.2
Laminaria digitata	107.5	86.7	40.6	158.5	153.8	81.2	0.0	171.2

2.2. Seaweed Density

To estimate *Fucus serratus* and *Laminaria digitata* density only seaweed plants that originated within the quadrats were cut and weighed (*i.e.* holdfasts within the quadrat). The entire frond of the seaweed plants that originated inside the quadrat were cut, removed and weighed. Seaweed fronds of seaweed plants with holdfasts outside the quadrat were not cut or weighed. The cut and removed seaweed was weighed to the nearest 0.5kg. Other species of seaweed were not cut or weighed. Epiphytic growth on *Fucus serratus* and *Laminaria digitata* fronds was included in the weight measurements.

2.2.1. *Fucus serratus* Density within Transect Quadrats

To estimate *Fucus serratus* density on the shore, a 2 no. transects were chosen at the proposed harvest areas (see **Figure 2.1**). The transects were orientated northwest - southeast and approximately horizontally to the low water line. The *Fucus serratus* transects were located in harvest area 2 and harvest area 3 and were representative of *Fucus serratus* bands within all of the proposed harvest areas. Along each transect a total 10 No. 0.25m^2 quadrats were selected. Within each quadrat *Fucus serratus* seaweed holdfasts were identified; the seaweeds were cut approximately 8 – 10 cm above the holdfast, removed and weighed. Mean weight within the quadrats were used to calculate density with the quadrats (kg/m^2).

2.2.2. *Laminaria digitata* Density within Sampling Site Quadrats

To estimate *Laminaria digitata* density, 2 no. sampling sites were also chosen. The sampling sites were located in harvest area 3 and harvest area, and were representative of the *Laminaria digitata* band within all of the proposed harvest areas. At each of the 2 no. sites, 3 no. 1m^2 replicate quadrats were selected at random. Within each quadrat *Laminaria digitata* seaweed holdfasts were identified; seaweeds were cut approximately 8 – 10 cm above the holdfast, removed and weighed. Mean weight of *Laminaria digitata* within the quadrats were used to calculate density with the quadrats (kg/m^2).

2.3. Seaweed Biomass

Using the coverage estimates (m^2) (see **Section 2.1**) and quadrat density measures (kg/m^2), total tonnage of *Fucus serratus* and *Laminaria digitata* biomass at the 8 no. proposed harvest areas was calculated using GIS.

Figure 2.1: *Fucus serratus* transects and *Laminaria digitata* sampling sites.

Figure 2.2: Target seaweed species coverage in harvest areas 1 – 6

Figure 2.3: Target seaweed species coverage in harvest areas 7 and 8.

3. Results

Fucus serratus and *Laminaria digitata* density within quadrats sampled can be seen in **Table 3.1** and **Table 3.2** respectively. Based on the 20 no. 0.25m^2 quadrats sampled along for the 2 no. *Fucus serratus* the average biomass in the harvest areas was estimated to be 12.7kg/m^2. Based on the 6 no. 1m^2 quadrats sampled for *Laminaria digitata* in the 2 no. sampling site the average biomass was estimated to be of 23.2kg/m^2.

The tonnage of seaweed in each harvest area was calculated based on the coverage of each species and their recorded average biomass. **Figure 2.2** and **Figure 2.3** show the coverage of *Fucus serratus* and *Laminaria digitata* within the harvest areas. **Table 3.3** shows the estimated tonnages for both species at the proposed harvest areas.

Table 3.1: *Fucus serratus* quadrat density (kg/m^2).

	Density kg/m^2										
Quadrat	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Mean**
Transect 1	8.0	20.0	12.0	20.0	2.0	2.0	12	6.0	4.0	24.0	**11.0**
Transect 2	14.0	22.0	28.0	1.2	20.0	12.0	28.0	4.0	7.2	8.0	**14.44**
											12.72

Table 3.2: *Laminaria digitata* quadrat density (kg/m^2).

	Density kg/m^2			
Quadrat	Q1	Q2	Q3	**Average**
Sampling Site 1	13.1	26	21.8	**20.3**
Sampling Site 2	32	27	19.3	**26.1**
				23.2

Table 3.3: Seaweed tonnages for each harvest area (tonnes).

Species	**Harvest area**								**Total Biomass (tonnes)**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
Fucus serratus	1,210.3	3,276.6	2,047.5	1,195.2	2,657.5	2,537.7	2,139.1	917.3	**15,981.2**
Laminaria digitata	2,494.0	2,011.2	942.8	3,676.7	3,567.2	1,882.9	0	3,970.7	**18,545.5**

Appendix A

Survey Photo Log