



**Appeal Ref No. AP 45/2018**

**Aquaculture Licences Appeals Board**

**Technical Advisor's Report – Final Report**

**Description:**

Biosecurity and Fish Health Assessment of Appeal AP45/2018 to License T5/591

**Licence Application**

**Department Ref No:** T5/591

**Applicant:** Wild Atlantic Sea Products Ltd.

**Minister's Decision:** Approved the granting of an aquaculture license for 10 years for the cultivation of seaweeds on a longline grid system in the sub-tidal part of the foreshore.

**Appeal**

**Type of Appeal:** In accordance with Section 40 and Section 41 of Fisheries (Amendment) Act

**Appellant(s):** Marine Harvest Ireland

**Observers:**

**Technical Advisor:** Dr. Hamish Rodger, VAI Consulting

**Date of report:** 20th April 2020

## **General Matters / Appeal Details**

### **1.1 Appeal Details & Observer Comments / Submissions**

Date Appeal Received: 14<sup>th</sup> November 2018

Location of Site Appealed: Bantry Bay, Co. Cork

### **1.2 Name of Appellant (s):**

Marine Harvest Ireland, Kindrum, Letterkenny, Co. Donegal

### **1.3 Name of Observer (s)**

Wild Atlantic Sea Products Ltd., South Allihies, Castletownbere, Co. Cork

### **1.4 Grounds for Appeal**

#### Substantive Issues

1. *Location* The appellant raised the issue of the location of the proposed seaweed sites which are west of two active organic salmon farm sites (Roancarrig T05/444D and Ahabeg T05/444E) and is just over 150m at the closest point of the sites. The appellant is appealing the license as they consider the proposed seaweed farm poses threats to the biosecurity and general security of the salmon farming sites. Two other seaweed sites (both for Allihies Seafood Ltd.) have been licensed, one between the two salmon sites (T05/586A) and the other (T05/587A) east of the Ahabeg site, but these are not mentioned in the appeal.

2. *Process* The appellant has made observations on stages of the application process, being unaware of the application which was advertised in the newspaper, The Southern Star, and as a result were not able to participate in the consultation process.

3. *Navigation* The appellant reports that navigation and access to the salmon site (T05/444D) from working vessels would be negatively affected by the proposed seaweed sites.

4. *Biosecurity & Fish Health* The appellant considers that there are increased risks to fish health and biosecurity of the salmon farms as a result of the granted location of the seaweed farms.

### **1.5 Minister's submission**

*Attached.*

**1.6 Applicant response**  
*Attached.*

**2.0 Consideration of Non-Substantive Issues**

N/A

**3.0 Oral Hearing Assessment**

An oral hearing is not considered necessary.

**4.0 Minister's file**

(Details of the file received from the Minister requested under Section 43 are listed here in chronological order. No interpretation of the information is to be made; this section only acts as a record of the file)

**5.0 Context of the Area**

**5.1 Physical descriptions**

*Attached no. 1.*

**5.2 Resource Users**

*See attached no. 2 and section 6.0.*

**5.3 Environmental Data**

*Attached no. 3.*

**5.4 Statutory Status**

*Attached no. 2.*

**5.5 Man-made heritage**

*Attached no. 4.*

**6.0 Section 61 Assessment**

## **6.1 Site Suitability**

The site proposed for the seaweed farm appears suitable for growth of the seaweed.

## **6.2 Other uses**

The salmon farm site Roancarrig (T05/591) is an operating organic site which is located east of the proposed seaweed site and is 150m distant at its closest point. As part of the normal management and husbandry of the salmon farm, vessels are employed daily for feeding, transport of personnel/equipment, cleaning, fish transport and treatments. Some of these vessels are large (>60m length) and these require to be adjacent to the pens when operating in/with each pen, and often at night. Manoeuvrability of such vessels and taking into account wind direction and currents, means that the options for safe and effective navigation may be compromised by the presence of another aquaculture farm in such close proximity.

## **6.3 Statutory Status**

The proposed site would not affect statutory status and is suitable from this perspective.

## **6.4 Economic effects**

The proposed site would initially employ two persons directly (and this would increase annually to 4 or 6 persons) with presumably downstream service employment related to any processing. The proposed site would therefore be of positive effect from an economic perspective.

## **6.5 Ecological Effects**

A total of 110 tonnes annual production of four different seaweed species are proposed for the farm which would be on longlines in a 15 to 18.75 hectare site (exact size to be confirmed). The seaweed would be harvested from the longlines by stripping off the growlines in a vessel on site with a hauler. Floats for the lines would be plastic and there would be approximately 25 per line and 7 grow lines. All four species of weed are native to Ireland and details of the sources of the seedlings have not been given, however, it should be clarified that these will be from Ireland (or if not that biosecurity protocols with regard to disease screening, etc. are undertaken in accordance with best practice to ensure no disease or pest is introduced to the area (*Cottier-Cook et al. (2016) Policy Brief: Safeguarding the future of the global seaweed aquaculture industry. United Nations University (attached)*).

There may be benefits from the seaweed farm operating in close proximity to the salmon farm similar to some seen with integrated multi-trophic aquaculture (IMTA) (*Fossberg et al. (2018) The potential for upscaling kelp (Saccharina latissima)*

*cultivation in salmon-driven integrated multi-trophic aquaculture (IMTA). Frontiers in Marine Science, 5:418. doi:10.3389/fmars.2018.00418) (attached)* where nutrients discharged by the salmon may be absorbed by the seaweed leading to more production of the weed.

In summary and assuming that seedlings will be sourced in-country there should be no negative concerns from an ecological perspective.

## **6.6 General Environmental Effects**

The seaweed, longlines and associated structures (floats, moorings, etc.) will all provide a substrate on which biofouling organisms will grow. These will include *Cnidaria* (jellyfish, anemones and hydroids) as well as molluscs and *Bryozoa*. In the process of harvesting some of these organisms will be washed off the lines and be returned to the water. Some of these organisms (*Cnidaria*) have stinging cells (nematocysts) that have been associated with gill and skin damage in fish (*Bloecher et al. (2018) Effects of cnidarian biofouling on salmon gill health and development of amoebic gill disease. PLoS ONE 13(7): e0199842. <https://doi.org/10.1371/journal.pone.0199842>*) (attached).

Specific pathogens (such as the amoebic gill disease (AGD) amoebae, *N. perurans*) have also been detected associated with biofouling organisms (*Hellebo et al. (2017) PCR survey for Paramoeba perurans in fauna, environmental samples and fish associated with marine farming sites for Atlantic salmon (Salmo salar L.). Journal of Fish Diseases, 40, 661 – 670.*) (attached).

It should also be noted that biofouling will grow naturally on fish farm structures as well and these are often dislodged during cleaning and routine management.

When the relative amounts of biofouling on the seaweed farm structures and the salmon farm are taken into consideration and considering that the proposed seaweed farm will be harvesting all biomass late spring/early summer before the majority of growth of biofouling occurs (and then remaining fallow for five months), means that any environmental effects will be minimal and are not considered significant (not considered negative).

## **6.7 Effect on man-made heritage**

None (see attachment no. 4).

## **6.8 Section 61 Assessment Conclusions**

Site Suitability

The site under appeal is suitable for the intended purpose for the following reasons;

1. Seaweeds can be grown in the area on the structures proposed and fallowed over summer months.

However, caution re. other users (see below) is required and needs to be considered.

### Other Uses

The proposed development has a potential impact on the other uses or users of the area for the following reasons;

1. Biofouling discharges could affect fish health but only if weed is farmed throughout the summer months when most biofouling growth occurs.

### Statutory Status

The proposed development would not change or impact the statutory status of the area.

### Economic effects

There is a significant positive effect on the economy of the area for the following reasons:

1. Increased sustainable local employment.

### Ecological Effects

Assuming that the seedlings for the proposed farm do not pose a biosecurity risk i.e. they are native and sourced in-country or ideally locally, there is a non-significant positive effect on the natural habitats, wild fisheries and fauna and flora of the area as a result of the proposed operation for the following reasons;

1. The seaweed would absorb and utilise water borne nutrients, discharged from sources such as the salmon farm.

### General Environmental Effects

There are non-significant adverse general environmental effects as a result of the proposed development for the following reasons;

1. The proposed site structures and weed will allow increased biofouling communities to grow and accumulate which will then be discharged into the local environment at harvest, however, the quantities involved will be very low especially if the harvesting occurs prior to summer months when the majority of the growth of these organisms will occur.

2. Some of these biofouling organisms may harbour a parasite that can affect fish health, however, there is at present no evidence to indicate that contact with these increases the risk of outbreaks of infectious disease in the farmed or wild fish.

### Man-made Heritage

There is no effect on the man-made heritage of value in the area as a result of the proposed operation for the following reasons;

1. Archaeological surveys have not indicated anything of potential.

### 6.9 Confirmation re Section 50 Notices

There are no matters which arise which the Board should take into account.

### **7.0 Screening for Environmental Impact Assessment.**

The pre-screening assessment did not appear to consider the impact of any discharges coming from the harvesting of the seaweeds. The proposed farm is not considered to have significant effects on the environment and should not be subject to an environmental impact assessment.

### **8.0 Screening for Appropriate Assessment.**

Appropriate assessment appears to have been undertaken in terms of European sites and further work is not considered as required.

### **9.0 Technical Advisor's Evaluation of the Substantive Issues in Respect of Appeal and Submissions/Observations Received**

1. *Location* The appellant raised the issue of the location of the proposed seaweed sites which are west of two active organic salmon farm sites (Roancarrig T05/444D and Ahabeg T05/444E) and is just over 150m at the closest point of the sites. The appellant is appealing the license as they consider the proposed seaweed farm poses threats to the biosecurity and general security of the salmon farming sites.

The frequency and size of vessels operating at the salmon farm, often at night, was considered, however the navigation assessment report (12/12/19, W. Kavanagh) considers that "navigation from the west and south and in or around the Roancarrig site (T05/444D) can be conducted in sufficient depths of water and clear of hazards."

2. *Process* The appellant has made observations on stages of the application process, being unaware of the application which was advertised in the newspaper, The Southern Star, and as a result were not able to participate in the consultation process.

Although The Southern Star has a small circulation (13,500) it is available throughout West Cork including Castletownbere and Bantry and is the known vehicle for notifications of applications for aquaculture licenses. This issue in the appeal is not considered valid.

3. *Navigation* The appellant reports that navigation and access to the salmon site (T05/444D) from working vessels would be negatively affected by the proposed seaweed sites.

The navigation assessment report (12/12/19, W. Kavanagh) considers that “navigation from the west and south and in or around the Roancarrig site (T05/444D) can be conducted in sufficient depths of water and clear of hazards.”

4. *Biosecurity & Fish Health* The appellant considers that there are increased risks to fish health and biosecurity of the salmon farms as a result of the granted location of the seaweed farms.

Biofouling discharges will occur at harvest that could be harmful to fish, however, with the proposed site harvesting out biomass before the warmest months when most biofouling growth occurs and then leaving the site fallow for five months any discharge volume will be very low. It is recommended that it is a condition of the license that the seaweed is harvested out from the site by the end of June of each year.

Although a parasite (gill amoebae which causes AGD) has been detected in biofouling, there is no evidence that exposure to biofouling increases the risk of fish to AGD at the time of writing.

5. *Observations from Licencee Wild Atlantic Sea Products Ltd (received by ALAB 21/12/18)* The Licencee, Wild Atlantic Sea Products Ltd., reports in the submitted response that they will “...remove all unnecessary structures from the site after harvesting, for the summer months...” which will minimise any biofouling accumulation. They note that there is no substantiation of a seaweed farm being a reservoir for organisms pathogenic to salmon, however, biofouling organisms such as the hydroid *Ectopleura larynx*, which do grow on seaweed and structures, as well as on salmon farms, have been confirmed to have *Neoparamoeba perurans* detected as present (this is the causal agent of amoebic gill disease or AGD), in both Ireland and Norway (*Oldham et al. (2016) Incidence and distribution of amoebic gill disease (AGD) – an epidemiological review. Aquaculture, 457, 35 – 42, Hellebo et al. (2017) PCR survey for Paramoeba perurans in fauna, environmental samples and fish associated with marine farming sites for Atlantic salmon (Salmo salar L.). Journal of Fish Diseases, 40, 661 – 670.*) (attached). Other biofouling organisms have been confirmed to harbour *N. perurans* in Tasmania.

The authors are correct that the farms will be surrounded by wild kelp, although the biofouling organisms may differ in the farmed suspended species when compared to the wild and environmental risks with seaweed farming exist, especially with large scale farming (*Campbell et al. (2019) The environmental risks associated with the development*



*of seaweed farming in Europe – Prioritizing key knowledge gaps. Frontiers in Marine Science, 6, 107 doi:10.3389/fmars.2019.00107 (attached)).*

The authors are correct that there are no documented examples of disease transfer between seaweed and salmon.

## **10.0 Recommendation of Technical Advisor with Reasons and Considerations.**

The salmon farm site Roancarrig (T05/591) is an operating organic site which is located east of the proposed seaweed site and is 150m distant at its closest point. As part of the normal management and husbandry of the salmon farm, vessels are employed daily for feeding, transport of personnel/equipment, cleaning, fish transport and treatments. Some of these vessels are large (>60m length) and these require to be adjacent to the pens when operating in/with each pen, and often at night. Despite this the navigation report (12/12/19) considers that operations can be conducted in sufficient depth of water and clear of hazards and therefore there is no need to increase the separation between the sites.

The proposed site structures and weed will allow increased biofouling communities to grow and accumulate which will then be discharged into the local environment at harvest, however, the quantities involved will be very low as the harvesting occurs prior to summer months when the majority of the growth of these organisms will occur.

Some of these biofouling organisms may harbour a parasite that can affect fish health, however, there is at present no evidence to indicate that contact with the biofouling increases the risk of outbreaks of infectious disease such as AGD.

It is recommended that it is a condition of the license that the seaweed is harvested out from the site by June of each year.

Due to the biosecurity risks when moving seedlings and livestock, which may be carrying pathogens, it is recommended that seedlings are sourced in-country in Ireland and ideally locally.

## **11.0 Draft Determination Refusal /or Grant**

This draft determination uses the agreed Board template for either refusal or grant of a licence.

**Technical Advisor:** *Dr. Hamish Rodger*

**Date:** 25th February 2020

**Appendices (as attachments)**

Ministers submission  
Applicant response  
Documents no. 1, 2, 3 & 4  
References (as below)  
Dept. of Agri., Food & Marine site map

### **References**

*Bloecher et al. (2018) Effects of cnidarian biofouling on salmon gill health and development of amoebic gill disease. PLoS ONE 13(7): e0199842.*

<https://doi.org/10.1371/journal.pone.0199842>

*Campbell et al. (2019) The environmental risks associated with the development of seaweed farming in Europe – Prioritizing key knowledge gaps. Frontiers in Marine Science, 6, 107 doi:10.3389/fmars.2019.00107*

*Cottier-Cook et al. (2016) Policy Brief: Safeguarding the future of the global seaweed aquaculture industry. United Nations University (<https://inweh.unu.edu/wp-content/uploads/2016/09/unu-seaweed-aquaculture-policy.pdf>)*

*Fossberg et al. (2018) The potential for upscaling kelp (*Saccharina latissima*) cultivation in salmon-driven integrated multi-trophic aquaculture (IMTA). Frontiers in Marine Science, 5:418. doi:10.3389/fmars.2018.00418*

*Hellebo et al. (2017) PCR survey for *Paramoeba perurans* in fauna, environmental samples and fish associated with marine farming sites for Atlantic salmon (*Salmo salar* L.). Journal of Fish Diseases, 40, 661 – 670*

*Oldham et al. (2016) Incidence and distribution of amoebic gill disease (AGD) – an epidemiological review. Aquaculture, 457, 35 – 42*