Final Appropriate Assessment Conclusion Statement by Licensing Authority for aquaculture activities in North Inishowen Coast Special Area of Conservation (SAC) (Natura 2000 Site Code: 002012), and Trawbreaga Bay Special Protection Area (SPA) (Natura 2000 Site Code: 004034)

1. Appropriate Assessment Process

1.1. This Conclusion Statement outlines how it is proposed to licence and manage aquaculture activities in the above Natura 2000 sites in compliance with the EU Birds and Habitats Directives.

1.2. Aquaculture in these Natura sites will be licensed in accordance with the standard licence terms and conditions as set out in the aquaculture licence templates[i]. Should licences be issued, they will also incorporate specific conditions to accommodate Natura requirements, as appropriate.

1.3. Appropriate Assessment reports relating to aquaculture in the North Inishowen Coast Special Area Conservation (SAC) and Trawbreaga Bay Special Protection Area (SPA) have been prepared by the Marine Institute on behalf of the Department of Agriculture, Food and the Marine[ii]. These Reports assessed the potential ecological impacts of aquaculture activities on Natura features in both the SAC and the SPA.

1.4. In addition to the target Natura sites, there are a number of other SACs and SPAs proximate to the proposed aquaculture activities and a screening was carried out on their likely interactions with aquaculture.

1.5. The information upon which the Appropriate Assessment is based is the definitive list of existing licences and applications for aquaculture available at the time of assessment. This information was provided by the Department of Agriculture, Food and the Marine.

2. Description of the Aquaculture Activities

2.1. Current aquaculture activities within the North Inishowen SAC/SPA occur at Trawbreaga Bay and focus exclusively on the cultivation of the Pacific oyster *(Crassostrea gigas)* on trestles in intertidal areas.

3. North Inishowen Coast Special Area of Conservation

3.1. The North Inishowen Coast SAC is situated on the north Donegal coast and is designated as an SAC under the Habitats Directive. The SAC stretches from Crummies Bay in the west up to Malin Head and back down to Inishowen Head to the East.

3.2. The SAC is designated for the following habitats and species, as listed in Annex I and Annex II of the Habitats Directive (Natura 2000 codes are in brackets):

- [1140] Mudflats and sandflats not covered by seawater at low tide
- [1220] Perennial vegetation of stony banks
- [1230] Vegetated sea cliffs of the Atlantic and Baltic coasts
- [2130] Fixed coastal dunes with herbaceous vegetation (grey dunes)
- [21AO] Machairs (*priority habitat in Ireland)
- [4030] European dry heaths
- [1014] Narrow-mouthed Whorl Snail *Vertigo angustior*
- [1355] Otter *Lutra lutra*

3.3. Constituent communities and community complexes recorded within the qualifying interest Annex 1 marine habitats (i.e. 1140 - Mudflats and sandflats not covered by seawater at low tide) consist of:

- Zostera-dominated community
- Fine to medium sand with Eurydice pulchra community complex
- Muddy sand to coarse sediment with Pygospio elegans community complex
- Sand with Angulus tenuis and Scoloplos (Scoloplos) armiger community complex.

3.4. The conservation objectives for the Qualifying Interests were defined by the National Parks and Wildlife Service (NPWS). The natural condition of the designated features should be preserved with respect to their area, distribution, extent and community distribution. Habitat availability should be maintained for designated species and human disturbance should not adversely affect such species.

4. Appropriate Assessment Screening of North Inishowen Coast Special Area of Conservation

4.1. A screening assessment is an initial evaluation of the possible impacts that such aquaculture activities may have on the qualifying interests.

4.2. An initial screening exercise resulted in a number of habitat features and species being excluded from further consideration. It was found that aquaculture activities have the potential to interact with one Qualifying Interest only:

- [1140] Mudflats and sandflats not covered by seawater at low tide

Therefore, this Qualifying interest was carried forward for a full assessment of the interactions.

4.3. Aquaculture sites and access routes do not overlap the community type Fine to medium sand with *Eurydice pulchra* community complex or *Zostera*-dominated community and no interaction with aquaculture operations was considered likely; consequently, potential effects on these community types **were screened out.**

5. Findings of the Appropriate Assessment of Aquaculture in relation to the North Inishowen Coast Special Area of Conservation

5.1. Potential effects on Qualifying Interest Mudfats and sandflats not covered by seawater at low tide [1140] in Trawbreaga Bay

5.1.1 Qualifying Interest 1140 covers an area of 988.31ha within Trawbreaga Bay in Site 002012 hosts four benthic community types:

- Fine to medium sand with *Eurydice pulchra* community complex (234.79ha)
- Muddy sand to coarse sediment with *Pygospio elegans* community complex (542.99ha)
- Sand with *Angulus tenuis* and *Scoloplos* (*Scoloplos*) *armiger* community complex (208.99ha)
- *Zostera*-dominated community (1.91ha)

5.1.2 Muddy sand to coarse sediment with *Pygospio elegans* community complex and, Sand with *Angulus tenuis* and *Scoloplos* (*Scoloplos*) *armiger* community

complex. constituent communities of the Qualifying Interest 1140 are overlapped by the aquaculture sites and access routes.

5.1.3 Given the evidence on the resilience of the Sand with *Angulus tenuis* and *Scoloplos* (*Scoloplos*) *armiger* community to depositional and organic enrichment effects the existing and proposed overlap of trestles **will not result in significant adverse effects or disturbance**.

5.1.4 The level of overlap between oyster trestle sites and the Muddy sand to coarse sediment with Pygospio elegans community complex are low (current levels = 3.82% and proposed levels = 5.46%). However, there is no existing data for Trawbreaga Bay on the sensitivity of this community type to depositional and organic enrichment effects. Given that the Muddy sand to coarse sediment with Pygospio elegans community complex has not been studied in Trawbreaga Bay in terms of its resilience it cannot be determined if this community is resilient to depositional and organic enrichment effects.

5.1.5 Given this lack of information the risk of depositional and organic enrichment effects arising from the overlap between aquaculture sites and the Muddy sand to coarse sediment with Pygospio elegans community complex the risk of adverse effects **cannot be discounted**.

5.1.6 For the previous AA reports prepared by the Marine Institute to support DAFM aquaculture licensing decisions, the Marine Institute has concluded that the activity at access routes is non-disturbing to intertidal habitats where the spatial overlap is less than the disturbance thresholds identified by NPWS in Conservation Objectives (*i.e.* where overlap is below 15%). In the case of Trawbreaga the access routes overlap 2.05% and 3.66% respectively of the Muddy sand to coarse sediment with *Pygospio elegans* community complex and, Sand with *Angulus tenuis* and *Scoloplos* (*Scoloplos*) *armiger* community complex. **The level of overlap of access routes is below the disturbance threshold.**

5.1.7 Intertidal and subtidal sands are sensitive to the introduction of non-native species. Aquaculture has been identified as a vector for the introduction/spread of a number of non-native species in Irish waters that have the potential to impact Qualifying Interest habitats and species for which the SACs are

designated. With strict adherence to the relevant legislation and best practice guidelines, there will likely be no significant adverse effects. It is important that triploid oysters continue to be used in Site 002012 in order to minimise any risk to Site 2237.

6. Screening of Adjacent SACs

6.1. In addition to the North Inishowen Coast SAC there are a number of other SAC sites proximate to the proposed activities. As it was deemed that there are no *ex-situ* effects and no effects on features in adjacent SACs, all qualifying features of the adjacent SAC sites were screened out.

7. Trawbreaga Bay Special Protection Area

7.1. Trawbreaga Bay SPA includes a very large area of intertidal habitat sheltered within the bay, with some narrow tidal creeks which develop into wider subtidal channels towards the mouth of the bay. Areas of terrestrial habitat include saltmarsh, coastal beach, dune, grassland, shingle banks and coastal cliffs. The SPA also includes Glashedy Island and the waters surrounding it, west of Isle of Doagh. The SPA has a total area of 1,549 ha. Around 80 % of the bay area is exposed at each low tide with intertidal sediment composed mainly of a mix of mud and sand flats with some stony/rocky substrates. Green algae mats occur on open flats and *fucoid* seaweeds grow on the stones.

7.2. Qualifying Interests of the Special Protection Area and Adjacent Special Protection Areas

7.2.1 The Qualifying Interests of the Trawbreaga Bay SPA include non-breeding populations of Barnacle Geese and Light-bellied Brent Geese. In addition, both breeding and non-breeding elements of the Chough population are also Qualifying Interests. The wetlands habitat contained within Trawbreaga Bay SPA is an additional conservation feature.

7.2.2 Two further SPAs are located within 15 km of Trawbreaga Bay SPA; Malin Head SPA (004146) and Inishtrahull SPA (004100). The Qualifying Interests of the Inishtrahull SPA are non-breeding populations of Barnacle

Goose and breeding populations of Shag and Common Gull, while the Qualifying Interests of Malin Head SPA is a breeding population of Corncrake. A further five Special Protection Areas are located beyond the 15 km search area recommended by guidance, but are included due to potential interchange that may occur between the sites due to the mobile nature of birds. Sites considered were: -

- Lough Foyle (both ROI and NI managed sites) (15.3 km to the southeast of Trawbreaga Bay SPA) (site codes 004087 & UK 9020031, respectively);
- Lough Swilly SPA (004075; 21 km to the southwest of Trawbreaga Bay SPA);
- Horn Head to Fanad Head SPA (004194; 16.8 km west of Trawbreaga Bay SPA);
- Fanad Head SPA (004148; 20.5 km to the west of Trawbreaga Bay SPA); and
- Greers Isle SPA (004082; 24.5 km west of Trawbreaga Bay SPA).

7.3 Conservation Objectives for Trawbreaga Bay Special Protection Area

7.3.1 Barnacle Geese and Light-bellied Brent Geese

The overall conservation objective for the non-breeding populations of Barnacle Goose and Lightbellied Brent Goose is to maintain or restore the favourable conservation status of the species. The favourable conservation conditions of these non-breeding species in Trawbreaga Bay SPA are defined by various attributes and targets, (i) population trend, and (ii) distribution.

7.3.2 Wetlands and waterbirds

The conservation objective for wetlands and waterbirds is to maintain its favourable conservation condition, which is defined by there being no significant decrease in the permanent area occupied by wetland habitats.

8. Appropriate Assessment Screening of Trawbreaga Special Protection Area and Adjacent Special Protection Areas

8.1. A screening exercise was carried out to screen out Qualifying Interests species that did not show any potential spatial overlap with effects from any of the proposed aquaculture activities being assessed. This was undertaken across all SPAs being assessed.

8.2. All of the Qualifying Interests for Trawbreaga Bay SPA were carried forward for full Appropriate Assessment. The remaining sites were addressed as follows: -

- Inishtrahull SPA (004100) – this site is designated for Barnacle Goose, Shag and Common Gull. Barnacle Goose at this site is considered in full in and the potential for impacts on Shag and Common Gull were **screened out**.
- Malin Head SPA (004146) & Fanad Head SPA (004148) are designated for breeding populations of Corncrake; both were **screened out**.
- The qualifying interests of Greers Isle SPA (004082) are Sandwich Tern, Black-headed Gull and Common Gull. Each was considered in detail and **screened out.**
- Lough Foyle (IE004087) & Lough Swilly (004075) are designated for a diverse range of wintering waders and wildfowl as well as breeding Sandwich Tern and Common Tern in the case of Lough Swilly. The former were screened out based on distance, site use etc.; while the potential for impacts on Sandwich Tern and Common Tern was considered in detail and **screened out**.
- Horn Head to Fanad Head SPA (004194). Barnacle Goose at this site is considered in full. This site is also designated for Chough. Horn Head to Fanad Head SPA supports an important population of breeding chough which favour coastal grassland. No impact from intertidal aquaculture is predicted and accordingly Chough at this site was therefore **not considered further**.
- Other Qualifying Interests, namely Peregrine and seabirds (i.e. Fulmar, Cormorant, Shag, Kittiwake, Guillemot and Razorbill) were considered in detail and **screened out**.

9. Findings of the Appropriate Assessment of Aquaculture in Trawbreaga Bay Special Protection Area

9.1. Chough

Due to the proposed scale of oyster cultivation; the lack of any significant use of intertidal habitat by Chough; and the separation of proposed oyster cultivation from known foraging, roosting or nesting sites it is unlikely that the intertidal oyster would have a negative impact on Chough using Trawbreaga Bay SPA.

9.2. Barnacle Geese

9.2.1 In the case of Trawbreaga, the flock would appear to be closely linked with the wider Malin flock and should be considered as a single unit. The site conservation condition of Barnacle Goose at Trawbreaga Bay SPA has been assessed as favourable based on the increasing population. Barnacle Geese do not feed on intertidal habitats, but favour terrestrial grassland or saltmarsh. Placement of trestles will not therefore result in direct habitat loss.

9.2.2 While there is evidence for small scale intertidal roosting, observed flocks have been small and ample alternate intertidal habitat exists to accommodate such day-time roosting.

9.2.3 The main potential for conflict is from access points where there may be increased activity close to feeding birds and / or from increased levels of activity on the shoreline. While the risk of negative impacts cannot be entirely discounted, geese are likely to habituate to repeated patterns of work at trestles on the intertidal area close to foraging fields.

9.2.4 The Department in conjunction with key stakeholders is working on a clear Code of Practice for operators in the Bay to address issues that arise in relation to this issue. The Code of Practice will provide a framework within which sustainable relationships may be developed between shellfish growers, Government Agencies, and other users, all of which co-exist in Trawbreaga Bay.

9.2.5 Continuation of annual monitoring of Barnacle Geese to identify and address any disturbance issues that may arise in the future is necessary.

9.3. Light-bellied Brent Geese

9.3.1 The site conservation condition for Light-bellied Brent Goose at Trawbreaga Bay SPA has been assessed as favourable based on the increasing population. However, when compared to historic site counts, recent counts undertaken in 2019 and 2021 suggest a large recent decline in numbers of Light-bellied Brent Goose at Trawbreaga. Thus, on the basis of these declining numbers the conservation condition of Light-bellied Brent Geese has been considered as unfavourable in Trawbreaga Bay in this assessment.

9.3.2 Based upon the NPWS low tide surveys (2009/10), the proposed applications being assessed in this report would result in displacement of up to 5.36% of the geese using Trawbreaga Bay SPA and represents a significant negative impact on the conservation status of Light-bellied Brent Geese using Trawbreaga Bay SPA.

9.3.3 However, the 2 counts undertaken in 2021 suggest that the number of areas within the bay being used by geese has declined, with smaller numbers of geese being located within a more confined area from Fegart Point to Lagg Beach.

9.3.4 The decline in Trawbreaga would appear to be higher than the current national trend which is a -15.5% (5 year; 2012 census); -10.2% (10 year; 2007 census) and +96 % (20 year; 1997 census). Unlike Barnacle geese, Light-bellied Brent Geese feed both on the foreshore and in areas of improved grassland. It is not clear whether birds are, *i*) preferentially moved to feed on grassland; *ii)* being displaced from the foreshore and forced to feed on grassland or, *iii)* being displaced entirely from Trawbreaga Bay SPA to another site, such as Lough Swilly. While there is evidence of field feeding, the numbers involved is unknown. There is anecdotal evidence that numbers of Light-bellied brent geese at Lough Swilly have increased.

9.3.5 Introduction of trestles to sand / mudflats provides a 3-dimensional structure upon which a range of algal species can grow; especially green algae favoured by Light-bellied Brent Geese. The species type and density of growth is influenced by the level of site maintenance. Where little maintenance occurs, a fucoid community can however develop; at this stage the trestles provide feeding opportunities for species such as Herring Gull, Oystercatcher and Hooded Crow

which target associated invertebrate fauna. Higher levels of maintenance favour the smaller green and purple algae; growth will also be influenced by nutrient levels within the estuary and water temperature and thus this resource can be quite substantial in autumn when birds first arrive.

9.3.6 It is noted that Light-bellied Brent Goose do feed on terrestrial grassland, though the degree to which this is undertaken at Trawbreaga has not been established.

9.3.7 It cannot be stated at this time whether the reduced number of observed birds can be explained by birds moving to feed terrestrially or whether birds have vacated the site.

9.3.8 The continuation of the existing licence conditions in relation to dogs on licensed sites, vehicles maintenance and that unused equipment (e.g. trestles; bags etc.) are removed from the foreshore will all continue to help in the reduction of disturbance to birds.

9.3.9 The Department, in conjunction with key stakeholders is also working on a code of practice for operators in the Bay to address issues that arise.

10. In-combination effects of aquaculture and other activities

10.1. The Appropriate Assessment reports considered the cumulative impacts of the combined effects of the aquaculture and other activities within the SAC/SPA, notably fisheries, seaweed harvesting, residential and recreational developments, hand collection of shellfish, bait digging and effluent discharge.

10.2. Given that interactions between Qualifying Interest 1140 and fishing activities are unlikely to occur, in-combination effects of fishery aquaculture activities are **screened out.**

10.3. Given that seaweed harvesting is confined to reefs combination effects of seaweed harvesting activities are **screened out**.

10.4. Given the pressure resulting from point discharge location such as the urban waste-water treatment and/or combined sewer outfalls would likely impact on physico-chemical parameters in the water column, any in-combination effects with aquaculture activities are **screened out**.

10.5. The likelihood of significant *in situ* and *ex situ* effects on all other Qualifying Interests of SAC sites have been excluded (**screened out**).

11. Natura Issues raised during the public/statutory consultation process regarding aquaculture licence applications within the SAC/SPA

11.1 The following are a range of the Natura related issues raised during the Public/Statutory Consultation phases.

- From a National and International perspective, Trawbreaga Bay is of significant importance in terms of Environment, habitat & species.
- The bay is a Ramsar Site and Wildfowl Sanctuary, and this should be protected.
- Concerns were raised in relation to Barnacle Geese, Light Bellied Brent Geese, Geese species in general, Chough, Peregrine Falcon, Curlew and Oystercatcher.
- Over time there will be a buildup of pollution due to the narrow entrance from the ocean that prevents the rapid clearing of waste produced by oysters.
- A colony of seals which reside on sandbanks near some application sites would be affected. Otters in the area may be displaced as they travel to water.
- Public Health & Safety, Accidents, food concerns over exposed trestles & sewage outfall close to the new application sites.
- Constant moving of sandbanks in the bay lead to unsuitable ground conditions
- A carrying capacity survey of the bay should be carried out.

Response:-

- *The applications were subject to Appropriate Assessment (AA) for protected habitats and species within the SAC and for protected bird species within the SPA. In addition, the likely interactions between Species of Conservation Interest in adjacent Natura sites were assessed and conclusions drawn regarding risk. The AA process and the recommendations made in the SAC and SPA reports afforded the appropriate level of protection to both Light Bellied Brent Geese and the relevant benthic community complex given the information to hand. The SPA report made a clear finding as to the risk of the proposed aquaculture activities on Light Bellied Brent Geese.*

- *Based on the findings of the AA Report on request from DAFM the Marine Institute (MI) has commissioned the monitoring and investigation of the potential adverse effects of existing aquaculture activities on both Light Bellied Brent Geese and the Sand with Angulus tenuis and Scoloplos (Scoloplos) armiger community complex within Trawbreaga Bay.*
- *The results of the monitoring in Trawbreaga Bay will provide important information that shall be taken into consideration before the in progress Code of Practice is finalised.*
- *As part of the screening exercise within the SPA report Lough Foyle SPA and Lough Swilly SPA are considered together given the similarities in bird species designated as conservation features within them. The AA Report screened out the potential for significant adverse effects on the Curlew, Oyster Catcher and Peregrine Falcon.*
- *The Marine Institute intends to investigate carrying capacity further in Trawbreaga Bay and other bays around Ireland. The findings of any such investigations will be incorporated into advice provision in relation to AA and aquaculture licensing in the future.*
- *The recommendations in relation to invasive species in the AA will adequately mitigate the risk of invasive species impacting protected habitats and species in Trawbreaga Bay.*
- *No species of seal is designated as a conservation feature of the North Inishowen Coast SAC. However, there are known haul out areas within the Bay which would be considered during the processing of any aquaculture licence application and where necessary, mitigation would be provided based on the proximity of the application site and if no natural barrier existed.*
- *The level of disturbance on the Otter is likely to be very low given it is unlikely that the species will be active at the aquaculture site and access routes during operations and encounter rates will be low; consequently, significant disturbance effects will not occur.*
- *It has been confirmed with Irish Water that UV filtration is provided on the outfalls in the vicinity of the application sites. The Sea Fisheries Protection Authority (SFPA) have confirmed that Trawbreaga has Class B Status for Pacific Oysters and as such*

any shellfish leaving this bay should be depurated or only sold to purification plants before being sold to the final customer.

12. Conclusion

12.1. Due to the uncertainty in relation to population decline/displacement of the Light-bellied Brent Goose in Trawbreaga Bay, at present and the need for verification of the population, the potential for negative impacts **cannot be discounted**.

12.2. Based on the requirement identified above for monitoring in relation to the potential effects of further aquaculture sites and their access routes on the qualifying interest 1140 of the North Inishowen Coast SAC (Muddy sand to coarse sediment with *Pygospio elegans* community complex and on the Sand with Angulus tenuis and Scoloplos (Scoloplos) armiger community complex), the potential for negative impacts **cannot be discounted**.

12.3. Further monitoring is required to provide for a greater understanding of the effects on the community complex Sand with Angulus tenuis and Scoloplos (Scoloplos) armiger and the community complex Pygospio elegans can be established before the 15% threshold is reached/exceeded by potential future sites.

12.4. Given the conclusions of the Appropriate Assessment process, in particular in relation to the need for monitoring to assess the impacts of any further aquaculture licensing on the Light-bellied Brent Goose and the need for monitoring in relation to the potential negative effects on the qualifying interest 1140, the currently proposed new aquaculture as assessed in the Appropriate Assessment cannot be licensed.

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[i] Aquaculture Licence Templates https://www.gov.ie/en/publication/fcd20-aquaculture-foreshore-management/

[ii] https://www.gov.ie/en/publication/fcd20-aquaculture-foreshore-management/#appropriate-assessments-carried-out