DEPARTMENT OF AGRICULTURE, FOOD AND THE MARINE

Updated Appropriate Assessment –Conclusion Statement

Carlingford Lough

Carlingford Shore SAC (Site Code: 002306) & Carlingford Lough SPA (Site Code: 004078)

November 2022

Department of Agriculture, Food and the Marine

Updated Appropriate Assessment Conclusion Statement by Licensing Authority in support of the Appropriate Assessment of Aquaculture in Carlingford Shore Special Area of Conservation (Site Code: 002306) & Carlingford Lough Special Protection Area (Site Code: 004078)

November 2022

This Updated Conclusion Statement outlines how it is proposed to licence and manage aquaculture activities in the above Special Area of Conservation (SAC) and Special Protection Area (SPA) – Natura 2000 sites - in compliance with the EU Birds and Habitats Directives. Aquaculture in these Natura Sites will be licensed in accordance with the standard terms and conditions as set out in the aquaculture licence templates. These are available for inspection on the Department's website at:

http://www.agriculture.gov.ie/seafood/aquacultureforeshoremanagement/aquaculturelicensing/

Furthermore, the licences will also incorporate specific conditions so as to accommodate Natura requirements, as appropriate, in accordance with the principles set out in this document.

This Updated Conclusion Statement has been prepared to incorporate the following:

- The updated Appropriate Assessment report relating to aquaculture in the Carlingford Shore AA Report Version November 2022 which has been prepared by the Marine Institute in relation to marine habitats;
- The updated Appropriate Assessment report relating to Carlingford Lough SPA Report Revised February 2022 prepared by Atkins Ecology/Marine Institute in relation to bird species.

on behalf of the Department of Agriculture, Food and the Marine (available on the Department's website).

The Appropriate Assessment process considered the potential ecological impacts of aquaculture activities on Natura features in the SAC and SPA.

In addition to the Carlingford Shore SAC and Carlingford Lough SPA, there are a number of other SACs and SPAs proximate to the proposed aquaculture activities and a screening was carried out on their likely interaction with aquaculture.

The information upon which the Appropriate Assessment process is based is the definitive list of existing licences and applications for aquaculture available at the time of assessment.

The Appropriate Assessment Process

The function of an Appropriate Assessment is to determine if the ongoing and proposed aquaculture activities are consistent with the Conservation Objectives for the Natura 2000 sites, i.e. will aquaculture activities lead to deterioration in the attributes of the habitats and species over time and in relation to the scale, frequency and intensity of the activities. The National Parks and Wildlife Service (NPWS) provide guidance on interpretation of the Conservation Objectives which are, in effect, management targets for habitats and species in Natura 2000 sites. The assessment of activities was informed by this guidance, which is scaled relative to the anticipated sensitivity of the habitats and species to disturbance by the proposed activities. Some activities are deemed to be wholly inconsistent with long term maintenance of certain sensitive habitats while other habitats can tolerate a range of activities. For the practical purpose of management of sedimentary habitats, a 15% threshold of overlap between disturbing activity and a habitat is given in the NPWS guidance. Below the threshold disturbance is deemed to be non-significant. Disturbance is defined as that which leads to a change in the characterizing species of the habitat (which may also indicate change in structure and function). Such disturbance may be temporary or persistent in the sense that change in characterizing species may recover to pre-disturbed state or may persist and accumulate over time.

The Appropriate Assessment process is divided into a number of stages consisting of a preliminary risk identification and subsequent assessment (allied with recommended mitigation measures, if necessary). The first stage of the process is an initial screening wherein activities are identified which are deemed not to have any impact on the conservation features because they do not spatially overlap with a given habitat nor have a clear pathway for interaction. These activities are excluded from further consideration. The next phase is the preparation of a Natura Impact Statement (NIS) where interactions with conservation features are identified. Further to this, an assessment on the significance of the likely interactions between activities and conservation features is conducted. Mitigation measures (if necessary or possible) will be introduced in situations where the risk of significant disturbance is identified. In situations where there is no obvious mitigation to reduce the risk of significant impact, it is advised that caution should be applied in licensing

decisions. Overall, the Appropriate Assessment is both the process and the assessment undertaken by the Competent Authority to effectively validate the Appropriate Assessment reports and/or the NIS. It is important to note that the screening process is considered conservative in that activities which may overlap with habitats, but which may have very benign effects are retained for full assessment.

Special Area of Conservation (SAC)

Aquaculture Activities in the SAC

Aquaculture activities within and adjacent to the Carlingford Shore SAC focus on the subtidal culture (bottom culture) of the blue mussel, *Mytilus edulis,* and the intertidal (bags and trestle) cultivation of the Pacific oyster, *Magallana gigas*.

Aquaculture and Habitats/Species

In Carlingford Lough (ROI waters) there are 12 existing mussel licences with a further 3 new applications. There are 23 fully licensed oyster production sites. There are 21 new oyster licence applications and 2 new licence applications for oysters and mussels combined. The likely interaction between aquaculture activity and the conservation features (habitats and species) of the site was considered.

An initial screening exercise resulted in all habitat features being excluded from further consideration. None of the aquaculture activities (existing and/or proposed) overlap or likely interact with the following features or species, and therefore the following habitats were excluded from further consideration in the assessment:

1. Annual vegetation of drift lines [1210]
2. Perennial vegetation of stony banks [1220]

Despite seals not being qualifying interests of the Carlingford Shore SAC, the likely interactions between the proposed aquaculture activities and seals were assessed as there are a number of haul out sites in Carlingford Lough.

The oyster culture sites were realigned, and the licenced sites are located greater than 200m from the haul-out site. On this basis, it is expected maintenance of activities at this distance will not result in disturbance to seals. Furthermore, the nature of the haul-out site

(reef) will also mean that bottom mussel activities will avoid this area and hence disturbance is expected to be minimal.

Other Considerations

Fishing activities in the Lough do not overlap Annex I habitats for which the SAC is designated and as a result it is considered that fishing in combination with aquaculture activities is not disturbing to the qualifying interests of the SAC.

On the basis of overlap of access routes with eel grass beds in the SAC, at the relevant sites, specific access routes have been identified that avoid eel grass beds and provide some buffer against accidental intrusion.

Special Protection Area (SPA)

Carlingford Lough SPA [004028] comprises two portions of the Lough extending from Carlingford Harbour to Ballagan Point, with Greenore in between. The predominant habitats within the SPA are intertidal sand and mud flats.

Currently there are 33 aquaculture sites operating off the southern shore of Carlingford Lough. The inner bay is used to produce mussels, while the outer bay is used to produce oysters and mussels. Oyster production is carried out within and throughout the majority of the SPA. No fisheries are currently operational within the Lough. There is a Fisheries Natura Declaration (under Regulation 9 of the European Union (Birds and Natural Habitats) (Sea-fisheries) Regulations 2013) in place overlapping with the SPA, prohibiting the production of mussels or harvest of seed stock from this area.

Status of species in Carlingford Lough SPA

Light-bellied brent Geese

In the *Conservation Objective Supporting Document*, NPWS indicate a long-term population trend (up to 25 years) of -1% or Intermediate (Unfavourable) status for Light-bellied brent geese in Carlingford Lough SPA. However, in contrast, more recent targeted Light-bellied brent geese counts are significantly higher; they show a large increase in numbers of Light bellied brent geese in Carlingford Lough from the baseline population of 253 (1995/96-1999/00). The maximum recorded was 687 birds in December 2010 (a count of international importance). This is more in line with the observed national trend for Light-bellied brent geese which is positive.

Mussels

Subtidal mussel cultivation is located entirely outside of Carlingford Lough SPA. Subtidal waters deeper than 0.5m are beyond the feeding range for Light-bellied brent geese and would not be used by geese for foraging. As noted, while birds may occasionally roost on such waters during daylight hours, Light-bellied brent geese using Carlingford Lough roost overnight in Dundalk Bay. Patterns of boat activity should not therefore negatively impact on brent geese use of the SPA.

Mussels are laid on the seabed; there are no physical structures on the shoreline or subtidally. Geese will continue to have access to the shore to feed on intertidal algae. Negative impacts on Light-bellied brent geese are not anticipated from the licensing of existing and new applications. Indeed, the reef system produced by subtidal laying of mussels can provide more robust attachment sites (than underlying muds) and in this way may provide additional feeding resources for Light-bellied brent geese during shallow water phases of the tidal cycle.

In conclusion, it is not anticipated that Light-bellied brent geese would be negatively impacted by the licensing of mussel cultivation in Carlingford Lough. This includes renewal of existing licences and new applications.

Oysters

Oyster cultivation is largely located within the SPA. Carlingford Lough SPA is comprised of 304ha of subtidal habitat; 285ha of intertidal habitat and 9ha of supratidal habitat (NPWS, 2013a) (i.e. 598ha). In total the Lough is ca. 51km² in area (5,100ha). However, based on admiralty charts and NPWS mapping the amount of available intertidal/shallow subtidal waters (across the tidal range) can extend to as much as 475ha within the SPA (ca. 80% of available habitat, within the SPA).

As outlined in the *Methods* section of the Appropriate Assessment report the approach taken in the past has been to look at the relationship between the area proposed for aquaculture and areas of suitable habitat within the SPA/bay. However, in the case of Carlingford Lough only a small portion of the bay is designated as a SPA, while Light bellied brent geese are known to use extensive areas outside the SPA; along the north shore in Northern Ireland and within the SPA in UK waters. Therefore, to take the above percentages as representative of the level of displacement within Carlingford Lough as a whole would be misleading as there are extensive areas of shoreline and intertidal habitat used by Light-bellied brent geese throughout the Lough. Use of the wider Lough was therefore also

considered. Also, the loss of foraging habitat due to placement of trestles may also be offset in part by these structures acting as stable sites upon which green algae growth can grow; though it should be noted that maintenance of oyster bags will seek to remove excess algae growth to prevent negative impacts on oysters being cultivated.

Martin (2011) recorded peak counts of 438 birds in Zone 1 (Ballagan to Greenore; March 2011) and 412 in Zone 2 (Greenore to Carlingford; Dec 2010); both sites clearly can support large numbers of brent geese even with present levels of aquaculture. It is, therefore, not anticipated that Light-bellied brent geese would be negatively impacted by the renewal of existing licensing for oyster cultivation in Carlingford Lough.

With respect to south of Greenore the existing trestles on the lower shore do appear to have moved up the shore to follow the shoreline and avoid the deeper subtidal channel. Behind the trestles is an area of shore that can be utilised by Light-bellied brent geese.

Terns

Terns are a species for which Carlingford Lough SPA (UK9020161) has been designated. There is no spatial overlap between the proposed aquaculture sites and the nesting sites on islands at the mouth of Carlingford Lough. Access by boat and tractor will not result in disturbance of birds nesting on these islands.

Furthermore, both Common Tern and Sandwich Tern routinely forage close to areas of human activity; and in the case of Common Tern regularly nest on man-made structures, such as in Dublin Port; rafts on the Lagan in Belfast, etc. Disturbance to nesting terns from the current proposals to cultivate oysters is not anticipated.

It is not anticipated that licensing of the current proposals of mussel and oyster cultivation licences would negatively impact upon Tern species for which Carlingford Lough SPA has been designated.

Monitoring Study

INIS Environmental Consultants Ltd. (INIS) were commissioned by the Marine Institute to coordinate a series of waterbird population surveys and disturbance surveys at Carlingford Lough, Co. Louth during the 2019/20 winter season. The waterbird surveys followed the standard methodology used for surveying wintering waterbirds at low tide (Lewis & Tierney, 2014); the surveys included four low tide surveys and a single high tide survey.

The 2019/20 survey of the southern shore of Carlingford Lough using low tide methodology came to the following conclusions: -

- The bird species using the areas are well habituated to aquaculture activity and generally undisturbed by it;
- They forage and roost amongst and on top of the oyster cultivation structures (trestles and bags) on almost all tides (particularly Light-bellied Brent Goose geese who exploit the fact that green algae grown on the oysters);
- Distribution follows patterns previously observed in 2010/11; and

Bird numbers show a slight decline in relation to previous studies; however, the methodology is not directly comparable as Carlingford Lough was not included in the NPWS programme of low tide surveys which were undertaken following the methodology set out in Lewis and Tierney (2014). A series of low tide counts were, completed in 2010/2011 by Martin (2011). The study assessed Light-bellied Brent Goose numbers through the full tidal cycle and was undertaken on four days per month as opposed to one day.

Conclusions

Mussel culture: - It is not anticipated that Light-bellied brent geese would be negatively impacted by the licencing of mussel cultivation in Carlingford Lough. This includes renewal of existing licences and new applications

Renewal of existing oyster licence: - It is not anticipated that Light-bellied brent geese would be negatively impacted by the renewal of existing licencing for oyster cultivation in Carlingford Lough. The findings of the 2019/2020 study would support this contention.

New oyster licence applications: - Light-bellied brent geese notably are found in the areas of Zostera and green algae found around freshwater inputs; as well as showing the Light-bellied brent geese do forage on algae growing on trestles. The importance of Zostera to Light-bellied brent geese, especially early in the season, was noted (INIS Environmental, 2020). It is therefore important that no overlap of licenced areas with Zostera beds is permitted and that no tracking of vehicles through Zostera beds is allowed.

While, the 2019/2020 monitoring study has indicated that geese are habituated to aquaculture activities, the loss of habitat under trestles and access to freshwater must still be considered particularly in areas where geese are known to forage on green algae found around freshwater inputs. Such freshwater inputs are also very important for the wider community of shorebirds within the estuary and safe access should be maintained for the bird community.

Monitoring Study Recommendations

It is recommended that a programme of monitoring of numbers and spatial distribution of Light-bellied brent geese be implemented in Carlingford Lough to monitor the ongoing

interaction of Light-bellied brent geese and the potential intensification of oyster culture activities over time. It is recommended that the site be surveyed in Year 1, 3 and 5.

ISSUES RAISED DURING THE AQUACULTURE LICENSING PROCESS FOR SITES IN CARLINGFORD SHORE (SITE CODE 002306) and CARLINGFORD LOUGH SPA (SITE CODE 004078)

A number of issues relevant to the Appropriate Assessment were raised during the aquaculture licensing consultation process prior to the 2019/2020 waterbird population surveys and disturbance surveys. These issues have been considered by the Department and its scientific advisors and are addressed below:

1. **Dredging of Mussels**

Comment: *'The main concern is the use of dredging as a mean to harvest the mussels'.*

Response: The concerns of the impact of mussel dredging are noted along with reference to a publication on the topic by Dolmer and Frandsen (2002). However, an alternative observation to impact of mussel dredging in the Limfjorden was also included in this publication but not referenced in the submission. Reference to epifauna changing in communities following dredging in Limfjorden may also have been attributed to the fact the area is considered eutrophic and subject to annual oxygen depletion, that is stressed (therefore not just impacted by mussel dredging). Furthermore, it should be noted there is no other viable method to harvest bottom-grown mussels.

2. **Suitable habitat outside the SPA**

Comment: *When assessing the potential impacts of aquaculture activities on the availability of suitable habitat for Light-bellied Brent Geese (an SCI for the SPA), the Appropriate Assessment for Carlingford Lough SPA considers the availability of suitable habitat outside the SPA. The assessment needs to take into account the availability of suitable habitat with the SPA, not outside it.'*

Response: This monitoring programme is designed to capture this information. However, it is important to point out that habitats outside of the Carlingford Shore SPA are as important as they may be found within other SPAs (in Northern Ireland or Dundalk Bay) and are thus worthy of consideration.

3. Mitigation Measures and Management Actions

Comment: '*The buffer zone around the keystone community – Zostera be a minimum of 30m as agreed with DAFM in October 2013 should also be included*'

Response: In relation to access routes crossing the *Zostera* beds, it has been proposed to minimise the extent of routes actually crossing *Zostera* beds in order to protect the habitat. The revised routes have been agreed in conjunction with the operators, BIM, AFMD and MED.

4. New methodology culture of oysters

Comment: *'A new method is being employed for culture of oysters within the site. While scientific assurance has been provided on the impact of the traditional intertidal bag and trestle method, no such assurance has been provided for this new methodology'*

Response: The Department notes alternative culture methodology is proposed within the site but it is considered that the use of such technology would not result in any appreciable disturbance to the seabed beneath the trestles. This system would allow for good water flow beneath the trestles, thus avoiding build-up of fine sediment. Studies in Canada comparing floating systems (all be they somewhat different than those proposed in Carlingford) demonstrated no appreciable difference in sediment biogeochemistry beneath the system and control locations. Furthermore, the purpose of the system is to ensure that oysters in the bags are turned via hydrodynamic forcing rather than by operators. This would result in less handling necessary on the shore and thus less activity and potential to disturb bird species at the sites.

SUMMARY OF MITIGATION MEASURES AND MANAGEMENT ACTIONS THAT ARE BEING IMPLEMENTED AS A CONSEQUENCE OF THE FINDINGS IN THE APPROPRIATE ASSESSMENT REPORT

Taking account of the recommendations of the Appropriate Assessment, as well as additional technical/scientific observations, the following measures are being taken in relation to licensing aquaculture in this SAC:

- No overlap of licenced areas with Zostera beds is permitted and that no tracking of vehicles through Zostera beds is allowed.
- Where necessary, proposed access routes will be amended, and a Licence condition will be inserted requiring strict adherence to the approved access routes over intertidal habitat in order to minimise species/habitat disturbances.

- Safe access should be maintained for the bird community to freshwater inputs.
- A programme of monitoring numbers and spatial distribution of light-bellied brent geese will be implemented to consider the potential impact of new applications. In the event of increased or significant levels of displacement of light-bellied brent geese being observed, specific management actions (with a view to reducing disturbance effects) will be implemented. These will be operationalised in licence conditions.
- All aquaculture licences are subject to standard licence conditions which cover, among other things, any further actions that might be required in the event of deterioration of conservation status of habitats/species at site level that is directly attributable to shellfish culture operations.
- A Licence condition will be inserted requiring full implementation of the measures set out in the draft Marine Aquaculture Code of Practice prepared by Invasive Species Ireland (e.g. http://invasivespeciesireland.com/cops/aquaculture).
- The movement of stock in and out of Carlingford Shore SAC and Carlingford Lough SPA should adhere to relevant fish health legislation.
- The use of updated and enhanced Aquaculture and Foreshore Licences containing terms and conditions which reflect the environmental protection required under EU and National law.

Conclusion

The Licensing Authority is satisfied that subject to the implementation of the above-listed mitigation measures, aquaculture licensing is not likely to significantly and adversely affect the integrity of the Carlingford Shore Special Area of Conservation and Carlingford Lough Special Protection Area.

November 2022