

**Appropriate Assessment Conclusion Statement by Licensing Authority for aquaculture activities in Cummeen Strand/Drumcliff Bay Special Area of Conservation (000627), Drumcliff Bay Special Protection Area (004013) and Cummeen Strand Special Protection Area (004035) (Natura 2000 sites)**

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. Aquaculture will be licensed in accordance with standard terms and conditions similar to those contained in the sample aquaculture licences available on the Department's website at: <http://www.agriculture.gov.ie/fisheries/aquacultureforeshoremanagement/aquaculturelicensing/>.

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

An Appropriate Assessment under Article 6 (3) of the EU Habitats Directive of aquaculture in the above 'Natura 2000' sites has been carried out by the Marine Institute on behalf of the Department of Agriculture, Food and the Marine. This Appropriate Assessment of aquaculture assessed the potential ecological impacts of aquaculture activities on the qualifying interests of Natura 2000 sites in and adjacent to Drumcliff Bay and Cummeen Strand (Sligo Bay). Both the Special Area of Conservation (SAC) and Special Protection Areas for birds (SPAs) were assessed.

There are also a number of other SPAs located within 15km of these bays, namely Ballysadare Bay SPA (004129); Aughris Head Bay SPA (004133); Ardboline Island and Horse Island SPA (004135); Ballintemple & Ballygilgan SPA (004234); Inishmurray SPA (004068) and Sligo / Leitrim SPA (004187). These adjacent SPAs were also considered because of their proximity to Drumcliff Bay/Cummeen Strand and the potential usage of aquaculture areas by birds for which these SPAs have been designated. The information upon which the Appropriate Assessment is based is the definitive list of applications and extant licences for aquaculture available at the time of assessment. This information was provided by the Department of Agriculture, Food and the Marine.

**Activities in Cummeen Strand/Drumcliff Bay Natura sites**

The main aquaculture activities are inter-tidal oyster culture and clam culture. The Pacific Oyster (*Crassostrea gigas*) is cultured on trestles in inter-tidal areas. Clams are grown as seed in sediment-filled boxes raised in the inter-tidal area and finished under netting in the intertidal zone. However, due to current issues with clam disease all licensees are proposing to grow Pacific oysters on trestles in the short-term, but they wish to reserve the option to revert to clams when disease concerns abate.

**Cummeen Strand/Drumcliff SAC (000627)**

Cummeen Strand/Drumcliff Bay SAC is comprised predominantly of intertidal and marine features. The site is dominated by two Annex I habitats, Estuaries [1130] and Mudflats and sandflats not covered by seawater at low tide [1140]; the SAC is also designated for marine species such as the Harbour (Common) Seal (*Phoca vitulina*).

## Conservation Objectives

The conservation objectives for the qualifying interests were identified by NPWS. The natural condition of the designated features should be preserved with respect to their area, distribution, and extent and community distribution. Habitat availability should be maintained for designated species and human disturbance should not adversely affect either species or habitats.

## Qualifying interests of SAC

The SAC is designated for a number of habitats and species, as listed in Annex I and II of the EU Habitats Directive, including: -

- 1095 Sea Lamprey
- 1130 Estuaries
- 1140 Mudflats and sandflats not covered by seawater at low tide
- 1365 Harbour Seal - *Phoca vitulina*

A number of other habitat features and species were screened out as there is no overlap or likely interaction with aquaculture activities (existing or proposed). These include Embryonic shifting dunes [2110]; Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]; Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]; *Juniperus communis* formations on heaths or calcareous grasslands [5130]; Petrifying springs with tufa formation (*Cratoneurion*) [7220] and *Vertigo angustior* (Narrow-mouthed Whorl Snail) [1014].

In addition, a number of constituent community complexes, recorded within the qualifying interests of Estuaries (1130) and Mudflats and sandbanks not covered by seawater at low tide (1140), were also excluded as there is no overlap with aquaculture activities. Furthermore, the aquaculture activities do not present a barrier to either migration through the estuary or to the (freshwater) attributes of Sea Lamprey (*Petromyzon marinus*).

A full assessment was carried out on the likely interactions between aquaculture operations (as proposed) and the features of the Annex 1 habitats 'Mudflats and sandflats not covered by seawater at low tide (1140)' and 'Estuaries (1130)'.

## Harbour Seal

The SAC hosts a consistent number of seals.

A number of different locations have been identified (sites T11/25, T11/50 & T11/76) within the SAC as being important to the overall welfare and health of the Harbour Seal population. These locations include breeding, moulting and resting sites. These sites are broadly concentrated on sandbanks in the central portion of the SAC.

The periods during which Harbour Seals are sensitive to disturbance are the pupping season (May-July) and the moulting season (August-September) and, as specified above, both periods and locations are considered important to the overall health of the seal population in the SAC. Any disturbance during these times should be kept to a minimum. Less information is known about the resting period (October-April) and resting areas throughout the SAC. The sheltered areas within the entire SAC are considered suitable habitat for resting (NPWS 2011).

It is acknowledged in the AA that the favourable conservation status of the Harbour Seal (*Phoca vitulina*) has been achieved given the current levels of aquaculture production within the SAC. The aspect of the culture activities that could potentially disturb the current Harbour Seal status relates to the location of structures; maintaining adequate cross site access to other sites and the movement of people and vehicles to & from, as well as within, the sites.

### **Conservation Objectives for Drumcliff Bay SPA and Cummeen Strand SPA**

The Special Conservation Interests (SCIs) of Drumcliff Bay SPA (004013) include non-breeding populations of Bar-tailed Godwit (*Limosa lapponica*) and Sanderling (*Calidris alba*). The SCIs of the Cummeen Strand SPA (004035) are non-breeding populations of Light-bellied Brent Goose (*Branta bernicla hrota*), Oystercatcher (*Haematopus ostralegus*) and Redshank (*Tringa totanus*). The conservation objectives for these species are to maintain their favourable conservation condition, which are defined as having stable or increasing long-term population trends (Attribute 1) and no significant decrease in numbers or range of areas (Attribute 2) utilised within Drumcliff Bay SPA and Cummeen Strand SPA, respectively. As noted, a number of additional SPAs were also considered; notably Ballintemple / Ballygilgan SPA (004234); the eastern most part of this site at Ballygilgan (also known as the Lissadell Goose Field) directly adjoins Drumcliff Bay SPA and supports large numbers of Barnacle Geese. However, Barnacle Goose is also an SCI for Ardboline Island / Horse Island SPA (004135) and Inishmurray SPA (004068); as a result the potential for impacts on Barnacle Goose was considered across all sites for which it is an SCI.

### **Wetlands & Waterbirds**

The wetland habitats [A999] within the Drumcliff Bay SPA and Cummeen Strand SPA and the waterbirds that utilise this resource are an additional SCI. The conservation objective for this SCI is to maintain its favourable conservation condition, which is defined by there being no significant decrease in the permanent area occupied by wetland habitats.

Aquaculture cultivation will not cause any change in the permanent area being occupied by wetland habitats.

### **Appropriate Assessment**

The function of the Appropriate Assessment is to determine if the ongoing and proposed aquaculture activities are consistent with the Conservation Objectives for these sites; and in the case of SPAs also those neighbouring sites where there is the potential usage of aquaculture areas by birds for which these SPAs have been designated. NPWS provide guidance on interpretation of the Conservation Objectives which are, in effect, management targets for habitats and species in the 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.

### **Appropriate Assessment of the SAC**

The Appropriate Assessment found that the majority of activities, at the current, proposed or likely future scale and frequency of activity are consistent with the Conservation Objectives. Some of the general conclusions and recommendations of the Appropriate Assessment are as follows:

- On the basis that aquaculture activities, which might be considered potentially disturbing to Annex I habitat conservation features, occur at an acceptable level, these activities are unlikely to have a detrimental impact on the habitat conservation features for the SAC.

- Given the short water residence time of the SAC and, in the case of oysters, the lack of available habitat, the risk of establishment of the Pacific oyster and the Manila clam within the SAC is considered low.
- Intertidal oyster and clam culture in Drumcliff Bay is considered disturbing to 'Mytilidae-dominated community complex'. It is recommended that the aquaculture site boundaries (T11/16) be redrawn to exclude overlap (site reduced from 10.5 ha to 7.58 ha) with this community type and a suitable buffer zone be applied in order to allow for mapping anomalies and enforcement measures.
- The current levels of licensed aquaculture (existing) are considered non-disturbing to Harbour Seal conservation features in all areas of the SAC. Exceptions may occur at some sites in Drumcliff Bay (T11/25, T11/50 & T11/76). No oyster cultivation will be allowed to impede seal movement between the resting / breeding locations and the main drainage channel. In addition, operators should note sensitive times of years for seals and continue to tailor their activities to minimise potential disturbance.
- In relation to new licence applications, given the potential broad range / spread of Harbour Seal within the SAC, the risk of their disturbance posed by an expansion of aquaculture is not considered significant, taking into consideration the location of areas for which applications have been received. These tend to be more confined to Cummeen Strand or adjacent to existing aquaculture activities and thus away from identified seal haul-out sites (sheltered areas).

### **Appropriate Assessment of the SPAs**

The potential impact of oyster and / or clam cultivation was assessed for each bay – for Bar-tailed Godwit, Sanderling and Barnacle Goose in Drumcliff Bay SPA (the latter a qualifying interest of the neighbouring Ballintemple & Ballygilgan SPA (004234)) and for Light-bellied Brent Goose, Oystercatcher and Redshank in Cummeen Strand SPA.

At sites in both Drumcliff Bay SPA and Cummeen Strand SPA it is proposed to culture Pacific oysters using trestles in the intertidal habitat; the proposed licence blocks also extend into the shallow subtidal. As no information is available at this time as to the % occupation of the licence blocks by trestles; a conservative approach of 100% occupation has been adopted.

In contrast to the wide distribution of oyster farming around the Irish coast, outside of Co. Sligo, we are aware of only a single site at Rossbehy, Glenbeigh, Co. Kerry where Manila clams are currently farmed. As a result, unlike the detailed study of the impact of oyster cultivation on shorebirds (Gittings and O'Donoghue, 2012), there is limited data on the relationship between shorebirds and clam parcs (apart from limited observations in Glenbeigh; Marine Institute, 2011a). Thus a conservative approach of 100% occupation of sites by clam mesh and resultant 100% displacement of SCI species from within aquaculture plots has been adopted to initially examine spatial / population impacts on SCIs.

In recent years, however, due to the outbreak of Brown Ring disease no Manila clams are currently being cultivated in Drumcliff Bay or Cummeen Strand. The licence renewals / applications are divided into three types; (i) those sites where it is solely proposed to cultivate Pacific oyster on trestles and (ii) those sites where it is proposed to cultivate Pacific oyster on trestles, but at some time in the future the applicant wishes to reserve the right to commence the cultivation of clams again (following a suitable fallow period to remove disease concerns from the site) and (iii) those sites where it is proposed to cultivate clams only.

The long-term population trends of Bar-tailed Godwit at Drumcliff SPA; as well as Light-bellied Brent Goose and Oystercatcher at Cummeen Strand SPA are positive; these are in line with or in the case of Brent Geese ahead of national trends. In contrast, Sanderling shows a negative trend at Drumcliff SPA; while Redshanks shows a negative trend at Cummeen Harbour SPA (please note specific comments below).

### Bar-tailed Godwit

In Drumcliff Bay SPA the primary risk of potential impact on Bar-tailed Godwit is at Ardtermon Strand (T11/85) where trestles could displace 4.66% of the SPA population. Some caution must, however, be exercised in assessing impacts at Ardtermon as the assessment is based on a relatively restricted data set (4 no. NPWS low tide counts from 2010 / 2011) which showed a high degree of inter-count variability. The potential for movement of Bar-tailed Godwit between Drumcliff, Cummeen and Ballysadare is also mentioned in the NPWS Conservation Objectives supporting document (NPWS, 2013b) and may go some way to explaining such variability.

The total displacement across all sites in the SPA is potentially greater than the 5% threshold used as a guide for identifying a likely significant impact on this SCI species. As noted, this assumes total occupation of a licence block and total exclusion of birds; this may therefore be an overly conservative assessment. As noted, trend analysis has shown that Bar-tailed Godwit is currently increasing within the SPA. However, one large count of 790 at Ardtermon Strand suggests this site can on occasion be extremely important for Bar-tailed Godwit. It is therefore recommended that the use of Ardtermon Strand by Bar-tailed Godwit be monitored (IWeBs and/or NPWS low tide counts). There is also a general condition in the licences which specifically requires that aquaculture activities should not adversely affect the integrity of the Natura 2000 features.

### Sanderling

The main area where Sanderling could be impacted by the granting of licence applications / renewals would be at Ballinphunta (sub site 0C449); here displacement of 1.5% of the SPA population is predicted for oysters based on mean numbers (this increases to 1.8% when the peak Sanderling count is used). This is well below the 5% threshold for a significant impact on this SCI<sup>1</sup>.

### Barnacle Geese

Given the continued increase in the Sligo flock it would appear that current levels of activity in the Sligo area (including aquaculture activity) are not negatively impacting on Barnacle Geese numbers using the complex of Ballintemple / Ballygilgan (Lissadell) SPA (004234), Inishmurray SPA (004068) and Ardboline Island / Horse Island SPA (004135). It is understood from NPWS that the Ballygilgan goose field is to be subject of a targeted management plan in order to encourage greater use of the site by Barnacle Geese. Intensification of activities and / or landward expansion of

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<sup>1</sup> While the population trends in Drumcliff Bay SPA are negative for Sanderling (-59; compared to +125 nationally); as discussed in the AA the low number / variability in timing of early IWeBS coverage (counts per winter, months of coverage and years with no data) does not allow confidence in the trends for this species in Drumcliff Bay. In recent years counts have been more frequent; with a strong correlation between the number of counts and the number of Sanderling recorded (see paragraph 5.4 of the AA); and a pattern of increasing numbers in the last 5 year period. Thus the predicted level of impact (<2%) is unlikely to have a significant impact on Sanderling at Drumcliff Bay SPA. It is, however, recommended that Sanderling also be counted at the sites above noted as supporting Bar-tailed Godwit; notably at Ardtermon Strand.

activities are therefore a concern if they were to result in increased levels of disturbance and displacement. In order to mitigate any potential significant impact of aquaculture activities at this location appropriate licence conditions will be inserted to ensure any sites licensed do not result in disturbance impacts on Barnacle Geese using Ballintemple / Ballygilgan SPA.

### Light-bellied Brent Geese

Negative impacts on this SCI species are deemed unlikely at all sites outside of Cummeen Strand (subsite 0C466). While it is concluded that the aquaculture licences will have some adverse impacts on this SCI at Cummeen Strand, given its positive population trend and the fact that this species does occur and is known to forage within oyster trestles and clam parcs, then the level of impact is not likely to be significant.

### Oystercatcher

Total levels of displacement could exceed the 5% threshold across all activities if one assumes 100% occupation of licence blocks and total exclusion of Oystercatcher from same. However, Gittings and O'Donoghue (2012)<sup>3</sup> found the assumption of total exclusion to be unrealistic; thus impacts are likely to be significantly less than those predicted above and thus are likely to be well below the 5% significance threshold.

### Redshank

Levels of displacement could exceed the 5% threshold for Redshank based upon total exclusion (between 7.23% and 10%). As above for Light-bellied Brent Geese, the main impacts are predicted to be in Cummeen Strand (subsite 0C466); where displacement due to oyster cultivation (assuming 100% occupation and total exclusion) would be over 5-8%. As noted, this conservative approach (of total exclusion) was adopted to allow for some uncertainty as to how Redshank responds to clam parcs. However, as discussed in the AA not all applicants wish to revert to farming clams; most will continue to farm oysters – and as noted Redshank have been shown by Gittings and O'Donoghue (2012) to show a neutral / positive reaction to trestles. The maximum level of displacement from those plot switching to clam farming would be <2%; the remaining sites being used to cultivate oysters only. Thus, the overall impact on Redshank is unlikely, on balance, to reach the levels noted above.

However, as the site trend for Redshank is more negative than the national trend<sup>2</sup>, there is a precautionary recommendation that the relationship between clam farming and this species be further examined before a switch back to clam farming is undertaken.

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<sup>2</sup> While as noted the site trend for Redshank is negative, some caution must be taken when interpreting this trend at a site level. As noted in the AA a detailed review of Cummeen Harbour SPA IWeBS data for Redshank over the period 1994/95 to 2012/13 shows a more consistent and generally stable underlying trend when based solely on January (mid-winter) counts. It is probable that the published site trend is strongly influenced by two very high counts in the baseline period (884; Sept 1996 and 1004; Oct 1998). However, these two counts both coincide with the period of autumn passage for Icelandic breeding Redshank. Thereafter, as noted in Crowe (2005) there can be a decline in mid-winter numbers due to onward migration and / or that large numbers of birds are not detected as they are more dispersed along estuaries and adjacent shores. In contrast peak counts in other years all fell between November and February. Furthermore, a series of low counts from 2009/10 to 2011/2012 followed a period of extremely harsh winter weather – these may have been influenced by mortality and /or onward migration (numbers in 2012/13 had recovered to 308).

<sup>3</sup> Gittings, T & O'Donoghue, P.D. (2012) The effects of intertidal culture oyster culture on the spatial distribution of waterbirds. Report prepared for the Marine Institute. Atkins, Cork.

### **Cumulative Impacts:**

This assessment considered the cumulative impacts of the combined effects of aquaculture and other activities within the SPA (including recreational activities, boat traffic, hand collection of shellfish, bait digging and effluent discharge). Disturbance levels at Drumcliff Bay SPA would appear to be lower than at Cummeen Strand SPA; the latter is close to Sligo Town and residential developments of Strandhill and Rosses Point. Sligo Airport is now largely used by light aircraft and coastguard helicopters; though disturbance of birds by aircraft was noted by NPWS during the low tide survey work in 2010/11. In contrast, the environs of Drumcliff Bay are largely agricultural.

Both bays are prone to disturbance from recreational activity in the intertidal zone which could have in-combination effects with displacement impacts from aquaculture activities. Beaches such as Ardtermon, Lissadell and Ballygilgan are popular and walkers with dogs were particularly noted as a source of disturbance. Aquaculture activities were noted as disturbing at a number of locations.

### **Mitigation Measures:**

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 the licensing of aquaculture in these Natura sites: -

- Inter-tidal oyster and clam culture in Drumcliff Bay is considered disturbing to 'Mytilidae-dominated community complex'. The site boundaries of T11/16 will be re-drawn to exclude overlap (site reduced from 10.5 ha to 7.58 ha) with this community type and a suitable buffer zone will be applied in order to allow for mapping anomalies and enforcement measures.
- While the current levels of licensed aquaculture are considered non-disturbing to Harbour Seal conservation features, an exception may occur at some sites in Drumcliff Bay (T11/25, T11/50 & T11/76). No oyster cultivation will be allowed which would impede seal movement between resting / breeding locations and the main drainage channel. In addition, operators should note sensitive times of year for seals and continue to tailor their activities to minimize potential disturbance.
- Previously issued licences have incorporated "Detailed Operational requirements for Aquaculture Operations in Drumcliff Bay". These requirements will be reviewed and incorporated in the conditions of any new licences to be issued.
- Note is taken of the AA recommendation that the relationship between clam farming and the Redshank at Cummeen Strand (SCI for Cummeen Strand SPA) be further examined before a switch back from oyster to clam farming is undertaken. Accordingly, any combined oyster and clam licences issued, in Cummeen Strand, will contain a requirement that licensees obtain prior approval of the Minister before resuming clam farming.
- Appropriate licence conditions will be inserted for aquaculture activities adjoining the Ballygilgan / Lissadell goose field; furthermore, numbers using both the Ballintemple subsite

and Lissadell (Ballygilgan) subsite should be monitored for any signs of disturbance and / or displacement by onshore aquaculture activities.

- Due to the concentration of licences at Cummeen Strand, note is taken of the AA recommendation to monitor IWeBS data at subsite OC466 for Light-bellied Brent Geese and Redshank, an area favoured by these species.
- Note is taken of the AA recommendation to monitor IWeBS data for Bar-tailed Godwit at Ardtermon Strand and at other key sites for this species. It is also noted in the AA that Sanderling numbers should also be monitored in this way.
- There is also a general condition in the licences which specifically require that the aquaculture activities not adversely affect the integrity of the Natura 2000 features.

## **Conclusion**

The Minister is satisfied that, given the conclusions and recommendations of the Appropriate Assessment process, along with implementation of measures that will mitigate certain pressures on Natura features, the proposed licensed activities are not likely to have a significant effect on the integrity of Cummeen Strand/Drumcliff Bay SAC or Drumcliff Bay and Cummeen Strand SPAs.