

Appropriate Assessment Conclusion Statement by Licensing Authority in support of the Appropriate Assessment of Aquaculture in Bannow Bay Special Area of Conservation (SAC) (site code 000697), Bannow Bay Special Protection Area (SPA) (site code 004033), including consideration of Ballyteigue Burrows SPA (site code 004020), Keeragh Islands SPA (site code 004118) and Saltee Islands SPA (site code 004002 (Natura 2000 sites)

This Conclusion Statement outlines how it is proposed to licence and manage aquaculture activities in Bannow Bay SAC/SPA 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/aquaculture/foreshoremanagement/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.

The Appropriate Assessment reports for aquaculture in Bannow Bay SAC/SPA have been prepared by Atkins Ecology/Marine Institute in relation to the Bird species, and the Marine Institute in relation to the marine habitats, on behalf of the Department of Agriculture, Food and the Marine (available on the Department's website). The Appropriate Assessment (Article 6 (3)) report for aquaculture assessed the potential ecological impacts of aquaculture activities on Natura features in and adjacent to the Natura sites in Bannow Bay. Three adjacent SPAs (Ballyteigue Burrows SPA (004020), Keeragh Islands SPA (004118) and Saltee Islands SPA (004002)) were also considered because of their close proximity to Bannow Bay and the potential usage of aquaculture areas by birds from these SPAs. 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.

Following submission of the AA Reports, two bird monitoring reports were provided to the Department by aquaculture operators in the bay. These reports represented waterbird surveys carried out during the winters of 2014/15 and 2015/16. The Marine Institute were requested by the Department to review the reports and update (if appropriate) the displacement analysis provided in the Natura Assessment Reports and subsequently review the conclusions of the AA Reports in the light of this new data. The Marine Institute commissioned Atkins Ecology to carry out this exercise and their report – Updated Assessment of Potential Displacement Impacts - was produced in July 2017 (available on the Department's website).

Description of Aquaculture Activities

There has been aquaculture activity at Bannow Bay since the late 1980s. Existing and proposed aquaculture activity in Bannow Bay involves suspended oyster cultivation using bags and trestles in the intertidal zone. One of the application sites also includes an application for mussel cultivation (using identical methods to that used for intertidal cultivation). Current aquaculture activity is concentrated in the middle of the bay. The bag and trestle method uses steel table-like structures which rise from the shore to just above knee height on the middle to lower intertidal zone, arrayed in double rows with wide gaps between the paired rows to allow for access. Both diploid and triploid oysters are grown in the bay. The oyster seed is bought in from oyster nurseries in France or the UK.

A full assessment was carried out on the likely interactions between aquaculture operations and the feature Annex 1 habitat Mudflats and sandflats not covered by seawater at low tide (1140). The constituent communities in the broad Annex 1 feature Mudflats and sandflats not covered by seawater at low tide are:

- *Zostera*-dominated community – (No overlap with aquaculture)
- *Barnea candida* community – (No overlap with aquaculture)
- Fine sands with *Pygospio elegans* and *Corophium volutator* community complex
- Intertidal sand dominated by polychaetes community complex

The likely effects of existing and proposed aquaculture activities were considered in light of the sensitivity of the constituent communities of the Annex 1 habitat 1140 which overlap with current and proposed intertidal oyster namely: Fine sands with *Pygospio elegans* and *Corophium volutator* community complex, and Intertidal sand dominated by polychaetes community complex.

Screening of Adjacent SACs for ex-situ effects

In addition to the Bannow Bay SAC there are two other SAC sites (Ballyteige Burrow SAC and Hook Head SAC) proximate to the proposed activities. A preliminary screening was carried out on the likely interaction with aquaculture activities within Bannow Bay SAC based primarily upon the likelihood of spatial overlap. The AA deemed that there are no ex-situ effects and no effects on features in adjacent SACs.

Findings and Recommendations of the Article 6(3) Appropriate Assessment Appropriate Assessment of the SAC

The Appropriate Assessment concluded (based primarily upon the spatial overlap and sensitivity analysis) that current and proposed intertidal aquaculture activities individually and in-combination do not pose a risk of significant disturbance to the conservation of habitats in Bannow Bay SAC.

While the combined spatial overlap of current and proposed oyster cultivation sites and the constituent community types of Fine sands with *Pygospio elegans* and *Corophium volutator* community complex was 14.89%, published literature (Forde et al 2015; Carroll et al 2016) suggests that activities occurring at trestle culture sites are considered to be non-disturbing to intertidal soft sediment communities.

Aquaculture activity overlaps 0.003 ha or 0.003% of Intertidal sand dominated by polychaetes community complex. Published literature (Forde et al 2015) suggests that activities occurring at trestle culture sites are non-disturbing.

Access routes used in intertidal areas, presumably by virtue of persistent compaction of the sedimentary habitats, are considered disturbing. The spatial overlap of access routes is 0.85% for Fine sands with *Pygospio elegans* and *Corophium volutator* community complex. Significant adverse impacts of activities on these community types can be discounted given this value is less than the 15% threshold of overlap between a disturbing activity and a habitat.

Conclusion

Based upon the scale of spatial overlap of current and proposed aquaculture activities and the relatively high tolerance levels of the habitats and associated species, the general conclusion is that aquaculture activities are non-disturbing to the habitat qualifying interests and their constituent communities.

The trestle study (Gittings and O'Donoghue, 2012) showed that, across the sites studied, Oystercatcher and Redshank generally have neutral or positive responses to intertidal oyster cultivation. The results for Bannow Bay for Oystercatcher conformed to this pattern and Oystercatcher was screened out from further assessment. However, Redshank appeared to show an exception to the general pattern at Bannow Bay and was screened in for assessment. At Bannow Bay, Curlew appeared to show a negative response to trestles and was screened in for assessment. The other SCI species either have negative responses to oyster trestles or uncertain or unknown responses. Consequently, they were screened in for assessment.

Wetlands and waterbirds

None of the activities being assessed will cause any change in the permanent area occupied by the wetland habitat. Therefore, the activities being assessed are not likely to have any significant impact on this SCI and it was screened out from any further assessment.

Ballyteigue Burrows SPA:

The SCI species for this SPA are Light-bellied Brent Goose, Shelduck, Golden Plover, Grey Plover, Lapwing, Black-tailed Godwit and Bar-tailed Godwit. While these species are potentially negatively affected by intertidal oyster cultivation, some of these species (Light-bellied Brent Goose, Golden Plover, Lapwing and Black-tailed Godwit) are known to be very mobile, as they regularly move inland to feed in fields. The other species (Shelduck, Grey Plover and Bar-tailed Godwit) are strictly confined to tidal habitats and may, therefore, be less likely to move between sites during the winter. The site fidelity for Shelduck and Grey Plover is described as high in NPWS (2014a) indicating that movements between sites within a winter are not usually a significant factor.

The SCIs of this SPA that are known to move inland to feed on fields, and/or do not have high site fidelity, were screened in for further assessment - Light-bellied Brent Goose, Golden Plover, Lapwing, Black-tailed Godwit and Bar-tailed Godwit.

Keeragh Islands SPA:

Cormorant

The aquaculture areas are within the likely core foraging range of the Keeragh Islands populations of Cormorant. A full assessment was carried out on this SCI.

Saltee Islands SPA:

The SCIs of this SPA are Fulmar, Gannet, Cormorant, Shag, Lesser Black-backed Gull, Herring Gull, Kittiwake, Guillemot, Razorbill and Puffin. Fulmar, Gannet, Kittiwake, Guillemot, Razorbill, Puffin Special Conservation Interest (SCI) species were screened out from further assessment because they can feed in the open sea and therefore have a neutral / positive response to intertidal oyster cultivation and are not considered to have any significant spatial overlap with the aquaculture plots in Bannow Bay. The trestle study classified the response of Herring Gulls to intertidal oyster cultivation as being neutral or positive.

The mean foraging range of Shag from their breeding colonies is 6.5 km, with a mean maximum of 16 km and a maximum of 20 km. Therefore, the aquaculture activities in Bannow Bay are outside the likely core foraging ranges of the Saltee Islands population of this species. As Shags are unlikely to fly overland, any spatial overlap between the Saltee Islands population and the aquaculture activities in Bannow Bay is likely to be minimal. Therefore, this SCI was screened out from further assessment.

even if this is the case, the assumption made in the displacement calculations represent conservative worst-case scenarios. Taking this into account it is reasonable to conclude that only the full occupation of all sites scenario presents a risk of significant displacement impacts, and even this risk has a high level of uncertainty.

Curlew: levels. It is likely that the recorded distribution patterns of Curlew in Bannow Bay reflect variations in habitat suitability and, on this basis, the smallest scale of analysis should provide the most reliable indication of the likely displacement impacts (no potentially significant displacement levels at the renewal/trials scenario). The predicted displacement impact is likely to overestimate the actual displacement impact due to the assumption of complete exclusion.

Redshank recorded patterns in Bannow Bay show little variability between Winters. This reflects the typical widely dispersed distribution of this species in estuarine habitats, which means it tends to occur at relatively uniform densities. The trestle study classified Redshank as having an overall neutral/positive pattern of association with oyster trestles (but may not be true for Bannow). The findings of the Assessment indicate that the recorded distribution patterns of Redshank in Bannow Bay reflect variations in habitat suitability and, on this basis, the smallest scale of analysis should provide the most reliable indication of the likely displacement impacts (no potentially significant displacement levels).

Knot: The recorded Knot distribution patterns have been highly variable in recent winters. This variability reflects the highly mobile nature of this species. There is no evidence in the data that displacement impacts from the expansion of areas occupied by trestles during this period have affected distribution patterns. The predicted significant or near significant displacement impact is likely to overestimate the actual displacement impact due to the assumption of complete exclusion.

Lapwing: The findings of the Assessment indicate that the predicted displacement levels for Lapwings are very low under all scenarios for the smallest scale of analysis (and that the smallest scale of analysis is the most appropriate for assessing the potential displacement impact to this species).

Shelduck and Golden Plover: The findings of the Assessment indicate that the potential for displacement impacts is very unlikely for Shelduck and Golden Plover. Therefore, no impacts to the conservation objectives for these species are predicted.

Pintail: The Pintail does not currently occur at Bannow Bay and its decline and disappearance from the site does not appear to be related to the development of aquaculture activities in the bay, but may be due to a combination of a national population decline and a re-distribution of the remaining population.

Interaction with Ballyteige Burrow SPA - Light-bellied Brent Goose, Lapwing, Black-tailed Godwit and Bar-tailed Godwit

The effects of full occupation of aquaculture sites in Bannow Bay on the conservation objectives for the Ballyteige Burrows SPA would depend upon the connectivity between the two sites. If their connectivity is high, the two sites would effectively support a single population and it is possible that displacement impacts within Bannow Bay would affect attribute 1 (population trend) of the conservation objectives for the Ballyteige Burrows SPA. Any such impacts would not

disturbance generating activities are unlikely to be causing significant impacts to the species covered in the assessment. Consideration was also given to potential effects on food resources by bait digging, shellfish collection and changing patterns of effluent discharge (i.e. nutrient inputs). There was no evidence that any such activities / proposed changes will cause a significant reduction in food supply for any of the SCI species.

Issues arising from statutory/public consultation

- The importance of adhering to the defined access routes must be re-iterated given the presence of the vulnerable intertidal seagrass bed and a number of Annex I coastal habitats for which the site is designated.

Licence conditions will require strict adherence to identified access routes over inter-tidal habitat.

- The assessment states that there are water quality issues within the bay; however the in-combination effects of point discharges, either from waste water treatment and/or combined sewage outfalls, are not considered on the basis that these discharges affect the physico-chemical parameters in the water column whereas aquaculture activities effects the sedimentary communities directly. However, within a shallow enclosed bay, poor water quality is an important factor that can impinge on the ecological integrity of the sedimentary communities, particularly if it is on-going.

The scientific advice available to the Department does not agree with the assumption that water quality and physical impacts (access routes) on benthic communities can be additive or synergistic. From the analysis presented in the SAC report, there will likely be minimal impact on sedimentary communities from the aquaculture activities.

- While it is accepted in general that the presence of the trestles on the intertidal has a benign effect, there is a threshold at which the density of trestles and their orientation is likely to have baffling effect that may result in alterations to the sediment below the trestles.

The AA conclusion of a lack of impact on benthic communities from trestles is derived for targeted studies carried out on a range of sites around the coast, including Bannow Bay. For the most part, these intertidal communities are typically impoverished with low numbers of species and overall abundances. Furthermore, these studies were specifically carried out among structures configured at the optimum culture density, i.e. rows of trestles are separated to ensure a lack of baffling and potential competition for food (phytoplankton) resources.

Concerns that the expansion of trestle-based aquaculture in Bannow Bay may have influenced the distribution of some of the bird species studied by Bird Survey Ireland in 2014/15 and 2015/16.

The concerns identified are reflected in this Conclusion Statement "It is proposed to licence aquaculture in Bannow Bay ... in conjunction with the preparation and implementation of an Adaptive Management Plan and a targeted monitoring programme of shorebirds. In the event of increased displacement of shorebirds being observed, specific management actions (with a view

conservation status of species/habitats at site level that is directly attributable to shellfish culture operations.

Conclusion

The Minister is satisfied that from a Natura 2000 perspective, given the conclusions and recommendations of the Appropriate Assessment process, along with implementation of the above 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 Bannow Bay SAC and Bannow Bay SPA, (including consideration of the Ballyteigue Burrows SPA, Keeragh Islands SPA and the Saltee Islands SPA).