This Conclusion Statement outlines how it is proposed to license and manage aquaculture activities in the Sheephaven Special Area of Conservation (SAC) (001190) in compliance with the EU Habitats Directive. Aquaculture in this Natura site will, if approved, be licensed in accordance, inter alia, 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/aquacultureandforeshorelicencetemplates/ The licences will also incorporate specific conditions so as to accommodate Natura 2000 requirements, as appropriate, in accordance with the principles set out in this document.

An Article 6 (Habitats) Assessment and, specifically, an Appropriate Assessment report relating to aquaculture in the Sheephaven SAC has been prepared by the Marine Institute on behalf of the Department of Agriculture, Food and the Marine. The Appropriate Assessment considered the potential ecological impacts of aquaculture activities on Natura features in the SAC.

In addition to the Sheephaven SAC, there are a number of other SACs 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 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.

**Description of the Aquaculture Projects**

The projects cover the renewal of existing aquaculture activity and the licensing of new aquaculture sites within the Sheephaven SAC area. There has not been any active aquaculture in Sheephaven Bay for a number of years but there is a single application for the cultivation of Pacific oysters on a site in inner Sheephaven Bay. This site can be accessed by a route from the shore south of Aghalattive to the proposed farm area.

Current aquaculture activities within the Sheephaven SAC are limited to sites in the Mulroy Bay portion of the SAC. There is existing Pacific oyster culture (in bags on trestles) and Manila clam culture (under netting). There is also a single application for the subtidal culture of scallops on one site in the Mulroy Bay portion of the SAC.

**Potential Impacts on Natura 2000 sites with respect to Qualifying Interests and Conservation Objectives**

**Sheephaven SAC**

Sheephaven Bay is situated on the northwest coast of Co. Donegal and is designated as a Special Area of Conservation (SAC) under the Habitats Directive. The Sheephaven SAC occupies the entire inner part of the bay and a portion of the SAC extends into Mulroy Bay. The dominant habitats in the SAC are intertidal sand and mudflats. The site is also designated for a range of coastal habitats including saltmarshes, sand dunes and species.
Qualifying Interests of the SAC

The SAC is designated for the following habitats and species (NPWS 2014a), as listed in Annex I and Annex II of the Habitats Directive:

- 1140 Mudflats and sandflats not covered by seawater at low tide
  - Sand to coarse sediment with *Pygospio elegans* community complex
  - Sand with *Angulus tenuis* community
- 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- 1395 *Petalophyllum ralfsii* (Petalwort)
- 1410 Mediterranean salt meadows (*Juncetalia maritimi*)
- 2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)
- 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)
- 21A0 Machairs (*priority habitat in Ireland*)
- 91A0 Old sessile oak woods with *Ilex* and *Blechnum*.

Conservation Objectives for Sheephaven SAC

The Conservation Objectives for the qualifying interests of the Sheephaven SAC (Site Code: 001190) were identified by NPWS (2014a). 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.

Screening of Adjacent SACs

There are seven other SAC sites proximate to the existing and proposed aquaculture activities, as follows:

- Sessiagh Lough SAC (000185)
- Horn Head and Rinclevan SAC (000147)
- Traranassan and Melmore Lough SAC (000194)
- Mulroy Bay SAC (002159)
- Lough Nagreaney Dunes SAC (000164)
- Cloghernagore Bog and Glenveagh National Park SAC (02047)
- Muckish Mountain SAC (001179).

A preliminary screening was carried out on these adjacent Natura 2000 sites to establish the likely interaction with aquaculture activities based primarily upon the likelihood of spatial overlap. It was deemed that there are no ex-situ effects and no effects on features in the adjacent SACs. Two species, designated for neighbouring SACs, were also assessed for likely interaction with aquaculture activities occurring within the Sheephaven SAC. These included the Otter (*Lutra lutra*), a designated species for the Mulroy Bay SAC and the Grey seal (*Halichoerus grypus*) which is a
designated species for the Horn Head and Rinclevan SAC. However, culture activities at Sheephaven SAC are considered non-disturbing to the Conservation Objectives for the Otter or the Grey seal. Therefore, all qualifying features of the adjacent SAC sites were screened out.

The Appropriate Assessment

The function of the Appropriate Assessment is to determine if the existing and proposed aquaculture activities are consistent with the Conservation Objectives set for the Natura site or if such activities will 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. NPWS (2014 a,b) provide guidance on interpretation of the Conservation Objectives which are, in effect, management targets for habitats and species in the SAC. This guidance is scaled relative to the anticipated sensitivity of 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 a disturbing activity and a habitat is given in the NPWS guidance (NPWS, 2014b). Below this threshold, disturbance is deemed to be non-significant. Disturbance is defined as that which leads to a change in the characterising species of the habitat (which may also indicate change in structure and function).

Screening

The likely interaction between aquaculture activities and the conservation features of the seven designated habitats and one designated species of the SAC were considered. A screening exercise resulted in six habitat features and one species being excluded from further consideration in the assessment as none of the aquaculture activities (existing and/or proposed) overlap or likely interact with the particular features or species. The habitats/species excluded from further consideration were (1330) Atlantic salt meadows, (1410) Mediterranean salt meadows, (2120) Shifting dunes along the shoreline with white dunes, (2130) Fixed coastal dunes with herbaceous vegetation (grey dunes), (21A0) Machairs (priority habitat in Ireland), (91A0) Old sessile oak woods with Ilex and Blechnum and (1395) Petalwort.

A full assessment was carried out on the likely interactions between existing and proposed culture operations and the feature of the Annex 1 habitat - 1140 (Mudflats and sandflats not covered by seawater at low tide). There are two constituent community types recorded within the qualifying interest of Mudflats and sandflats not covered by water at low tide. The Sand with Angulus tenuis community type was shown to have no overlap or likely interaction with aquaculture activities and was excluded from further analysis. The likely effects of the aquaculture activities (species, structures, access routes) were considered in light of the sensitivity of the other constituent habitat i.e. Sand to coarse sediment with Pygospio elegans community complex.

Findings and Recommendations of the Appropriate Assessment of Aquaculture

Aquaculture and Habitats:

- While the existing and proposed cultivation of oysters in the SAC extend over 1.25% of the Mudflats and sandflats not covered by seawater at low tide (1140) and 1.87% of the constituent community type of Sand to coarse sediment with Pygospio elegans community complex, published literature (Forde et al, 2015; Carroll et al) suggests that oyster trestle culture is not considered disturbing.
- Intertidal clam culture, by virtue of the fact that the species occurs under netting and dredges are used to extract the clams from the sediment is considered a disturbing activity. The spatial extent of clam culture extends over 0.32% of Mudflats and sandflats not covered by seawater at low tide (1140) and 0.48% of Sand to coarse sediment with *Pygospio elegans* community complex.

- The access routes used in intertidal areas, by virtue of persistent compaction of sedimentary habitats, are considered disturbing. The total spatial overlap over which the access routes fall is 0.14% for Mudflats and sandflats not covered by seawater at low tide (1140) and 0.20% for Sand to coarse sediment with *Pygospio elegans* community complex.

- The total cumulative value of disturbing activities relating to aquaculture are 0.46% for Mudflats and sandflats not covered by seawater at low tide (1140) and 0.68% for Sand to coarse sediment with *Pygospio elegans* community complex. As this value is below the 15% threshold, significant adverse impacts of activities on the habitat feature and the community type can be discounted.

- The scallop culture application spatially overlaps with the feature 1140 and community type within the intertidal habitat of the Sheephaven SAC. However, the activity will be confined to subtidal areas which fall outside of the habitat features and the Sheephaven SAC. It is unlikely therefore that this activity based upon how it is harvested (by diving) will have any impact on the Sheephaven SAC.

- The Appropriate Assessment report concluded that based upon spatial overlap and sensitivity analysis, the existing and proposed levels of aquaculture activities, including access route activity (bar the culture of diploid oysters in Mulroy Bay) do not pose a risk of significant disturbance to the conservation of the habitat feature of Mudflats and sandflats not covered by seawater at low tide (1140) or the constituent communities Sand to coarse sediment with *Pygospio elegans* community complex and Sand with *Angulus tenuis* community.

### In-combination effects of aquaculture and other activities

A number of in-combination effects resulting from potential fisheries (hydraulic dredging for cockle), intertidal seaweed harvesting and pollution pressures were considered in the Appropriate Assessment. The conclusion is that none, when considered in conjunction with shellfish culture activities, will result in a significant disturbance to the conservation features of the Sheephaven SAC.

### Introduction of non-native species

- Oyster culture may present a risk in terms of the introduction of non-native species such as the Pacific oyster (*Crassostrea gigas*). However, the proposed oyster production in Sheephaven Bay is low, the amount of suitable habitat intertidally is low and residence time is estimated at between 1.2 - 22.6 days which is considered to be at the boundary of risk. Therefore the risk of successful establishment of the Pacific oyster in the Sheephaven Bay portion of the SAC is considered low.
In Mulroy Bay, the estimated residence time is longer (2.1 - 36.7 days) and does present a risk of retention of larvae within the system. However, the intertidal habitat has high macroalgal cover which is not conducive to oyster recruitment and production estimates will also be low. Recent surveys have confirmed the absence in recruitment of *Crassostrea gigas* in Mulroy Bay (Kochmann, 2013). Nevertheless, the culture of large numbers of diploid (i.e. reproductively viable) oysters may present a risk of successful recruitment of this species in Mulroy Bay (given the extended residence time). This will be mitigated by providing that any licences issued will contain a stipulation that triploid oysters continue to be used at sites within the Mulroy portion of the Sheephaven SAC.

Clam culture may present a risk in terms of the introduction of non-native species such as the Manila clam (*Ruditapes philippinarum*). This species has been cultured in Ireland since 1984 and there does not appear to be any recruitment in the wild. The operations are totally reliant on hatchery seed and are fully contained at all stages of the production cycle. The risk of naturalisation of the Manila clam is therefore considered to be low.

**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 the Sheephaven SAC:

- Licence conditions requiring strict adherence to the identified access routes over intertidal habitat in order to minimise habitat disturbance;

- 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;

- Licence conditions requiring that triploid oysters be used at the relevant sites in the Mulroy Bay portion of the SAC and that the measures set out in the draft Marine Aquaculture Code of Practice prepared by Invasive Species Ireland are adhered to;

- The relevant scallop culture licence application in the Mulroy Bay portion of the SAC needs to be fully considered in conjunction with the Mulroy Bay SAC assessment report and process as the proposed activity occurs predominantly in subtidal areas which fall outside of the habitat features and the Sheephaven SAC.

**Conclusion**

The Licensing Authority is satisfied that, given the conclusions and recommendations of the Appropriate Assessment process, a decision can be taken in favour of licensing existing and proposed aquaculture operations in the Sheephaven SAC, subject to other licensing considerations and in conjunction with the Mulroy Bay SAC assessment process in the case of the scallop culture licence application.
Accordingly, the proposed licensing of Pacific oyster, Manila clam and scallop culture is not likely to significantly and adversely affect the integrity of the Sheephaven SAC, subject to additional findings relating to scallop culture from the Mulroy Bay SAC assessment process.