Article 6 Assessment of Aquaculture and Fisheries in Galway Bay Complex SAC (000268) and Inner Galway Bay SPA (4031)

Marine Institute

Rinville

Oranmore, Co. Galway

Version: October 2014
1 Introduction

This document assesses the potential ecological impacts of aquaculture and fisheries activities within Gaway Bay Complex SAC (site code 000268) on the Conservation Objectives of the site (COs) and also the potential impacts of those activities on the Special Conservation Interests (SCIs) in the inner Galway Bay SPA (004031).

- The assessment of fisheries and aquaculture in the SAC is detailed in Annex I
- The assessment of fisheries and aquaculture in the SPA is detailed in Annex II
- The summary, below, outlines the process and main findings

2 Summary

2.1 The SAC and SPAs

Galway Bay Complex is designated as a Special Area of Conservation (SAC) under the Habitats Directive. The marine area is designated as a large shallow inlet and bay and for intertidal mud and sand flats not covered by seawater at low tide. The bay supports a variety of sub-tidal and intertidal sedimentary and reef habitats including habitats that are sensitive to pressures, which might arise from fishing and aquaculture, such as maerl (coralline algae) and seagrass beds. The area is also designated for and supports significant numbers of Harbour Seal and Otter while salmon and sea lamprey, designated in the Lough Corrib SAC which flows into the north east corner of the Bay, migrate through the Bay as smolts and as mature animals returning from sea. Conservation Objectives for these habitats and species (within the Galway Bay Complex SAC) relate to the requirement to maintain habitat distribution, structure and function, as defined by characterizing (dominant) species in these habitats. For designated species the objective is to maintain various attributes of the populations including population size, cohort structure and the distribution of the species in the Bay. Guidance on the conservation objectives is provided by NPWS (2013b).

The Special Conservation Interests (SCIs) of the Inner Galway Bay Special Protection Area (SPA) include:

- Non-breeding populations of Light-bellied Brent Goose, Wigeon, Teal, Shoveler, Red-breasted Merganser, Great Northern Diver, Cormorant, Grey Heron, Ringed Plover, Golden Plover, Lapwing, Dunlin, Bar-tailed Godwit, Curlew, Redshank, Turnstone, Black-headed Gull and Common Gull; and

- Breeding populations of Cormorant, Sandwich Tern and Common Tern.

The conservation objectives for the Cormorant, Sandwich Tern and Common Tern breeding populations at Inner Galway Bay are to maintain their favourable conservation condition, which are
defined by there being no significant decline in the abundance of the breeding population, the productivity rate, the distribution of breeding colonies and the prey biomass available, and no significant increase in barriers to connectivity and disturbance at the breeding site.

The conservation objectives for the non-breeding SCI species at Inner Galway Bay are to maintain their favourable conservation condition, which are defined by there being stable or increasing long-term population trends and no significant decrease in numbers or range of areas used within Inner Galway Bay.

The wetland habitats within the Inner Galway Bay SPA and the waterbirds that utilise this resource are an additional SCI (the wetlands and water birds 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.

2.2 Fishing and aquaculture activities in the SAC and SPAs

Fishery activities

The main fisheries in the SAC are pot fisheries for Lobster, crab and Shrimp. Up to 30 vessels fish in the inner Bay with pots. The activity occurs throughout the year with an emphasis on lobster from March to September and Shrimp from September to February.

A fishery for native oysters (Ostrea edulis) occurs in the south east part of the SAC east of Eddy Is. towards the Clarin river estuary and south towards Kinvara Bay in December. Much of this area is covered by fishery orders but part of the fishery is in public grounds.

Small, episodic or potential dredge fisheries may occur for scallop, surf clam and razor clam in the SAC or to the west of the SAC.

Bottom trawling, tangle netting for crayfish, brown crab pot fisheries and pelagic fisheries occur in Galway Bay but largely outside of the SAC.

Aquaculture activities

The primary aquaculture activities are intertidal oyster culture as and suspended mussel culture. The Pacific oyster (Crassostrea gigas) is cultured on trestles in intertidal areas. Mussels are cultured using droppers from longlines held by floats or rafts. Oysters and mussels are also cultured on the seabed. In addition, there are applications to culture mussels on the seabed subtidally and clams intertidally.

2.3 The appropriate assessment and risk assessment process

The function of the appropriate assessment and risk assessment is to determine if the ongoing and proposed aquaculture and fisheries activities are consistent with the Conservation Objectives for the sites 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. National Parks and Wildlife Service provide guidance on interpretation of the Conservation Objectives which are, in effect, management targets for habitats and species in the sites. 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. Below this 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.

In the case of designated bird species trends in populations and range of habitat use are important especially with respect to conditions that prevailed in the mid 1990s (baseline period).

The appropriate assessment and risk assessment process is divided into a screening stage and appropriate assessment or risk assessment proper. The assessment begins by screening out those activities which cannot have, because they do not spatially overlap with a given habitat, any impact. This is a conservative screening in that other activities which may overlap with habitats but which may have very benign effects are retained for full assessment. In assessment of species activities outside the site which may have an effect on them are included. This is particularly important for highly mobile widely distributed species. In the case or risk assessments of fisheries, consequence (impact) and likelihood of the consequence occurring are scored categorically as separate components of risk. Risk scores are used to indicate the requirement for mitigation.

### 2.4 Data supports

Distribution of habitats and species population data are provided by NPWS. Fishing data are compiled from various sources including hard data and expert knowledge of staff at BIM and MI. Information on Aquaculture licences and applications are provided by DAFM. Scientific reports on the potential effects of various activities on habitats and species have been compiled by the MI and provide the evidence base for the findings. The data supporting the assessment of individual activities vary and provides for varying degrees of confidence in the findings.

### 2.5 Findings

The appropriate assessment and risk assessment finds that the majority of activities, at the current and proposed or likely future scale and frequency of activity are consistent with the Conservation Objectives. The following are the exceptions:
Annex I Habitats interactions with Aquaculture:

A full assessment was carried out on the likely interactions between aquaculture operations (as proposed) and the feature of the Annex 1 habitats Mudflats and Sandflats not covered by seawater at low tide (1140), Large Shallow Inlets and Bay (1160) and Reefs (1170). The likely effects of the aquaculture activities were considered in light of the sensitivity of the constituent communities of the Annex 1 habitats. A number of issues are highlighted and relate to certain aquaculture and habitat interactions the conclusions of which are presented below.

Conclusion 1: Aquaculture activity is deemed disturbing on two community types, Maërl-dominated community and Zostera-dominated community complex. The risk to the conservation status of sensitive habitats (i.e. Mearl and Zostera) posed by number of overlapping or adjacent aquaculture locations therefore, cannot be discounted. These impacts are potentially exacerbated by fishing activities. All efforts should be made to avoid overlap with these sensitive areas and a suitable buffer zone be applied in order to allow for mapping anomalies and enforcement measures.

Conclusion 2: By virtue of sediment plumes arising from mussel dredging activities, the risk posed by bottom mussel culture adjacent to the Maërl-dominated community habitat cannot be fully discounted.

Conclusion 3: The presence of non-native species Didemnum sp. in Galway Bay is acknowledged and in particular, is associated with structures used to culture oysters (trestles). Best practice should be employed to ensure that structures and netting are kept clean at all times and that any biofouling be dealt and disposed of in a responsible manner such that it is removed from the marine environment and does not pose a risk to the conservation features of the site. The draft Code of Practice produced by Invasive Species Ireland¹ is recommended as a suitable reference for appropriate management actions.

Conclusion 4: The risk posed by the culture of the pacific oyster, Crassostrea gigas, uncontained on the seabed cannot be discounted. Given that oyster recruitment has been recorded in Galway Bay and that subtidal culture results in higher reproductive potential, it is recommended that all subtidal oyster culture be carried out using triploid oysters and that culture areas be clearly defined within the broader licenced plots.

Conclusion 5: The source of mussel seed stock inputted into existing licenced mussel areas in Galway Bay is unverified and presents a risk of alien species being introduced to the SAC. Similar concerns present in relation to the new bottom mussel culture applications. In the absence of this information the risk posed by this activity cannot be discounted. It is recommended that acceptable sources of seed (in terms of alien species risk) are identified for bottom mussel culture operations and

that all future movements of shellfish stock (mussels, oysters and clams) in and out of Galway Bay Complex SAC should adhere to relevant fish health legislation and follow best practice guidelines (http://invasivespeciesireland.com/cops/aquaculture/).

Annex II Species interactions with Aquaculture

The likely interactions between the proposed aquaculture activities and the Annex II Species Harbour Seal (Phoca vitulina) and Otter (Lutra lutra) were also assessed. The objectives for these species in the SAC focus upon maintaining or restoring the good conservation status of the populations, respectively. It is concluded that the activities proposed in the areas that potentially overlap with otter habitat do not pose a threat to the conservation status of this species.

It is acknowledged in this assessment that the favourable conservation status of the Harbour seal (Phoca vitulina) has been achieved given current levels of aquaculture production within the SAC. The aspect of the culture activities that could potentially disturb the Harbour seal status relates to movement of people and vehicles within the sites as well as accessing the sites over intertidal areas and via water.

Conclusion 1: The current levels of licenced aquaculture (existing) are considered non-disturbing to harbour seal conservation features in all areas of the SAC. Operators should note sensitive times of years for seals and continue to tailor their activities to minimise potential disturbance.

Conclusion 2: In relation to new licence applications, given the potential broad range of Harbour Seal within the SAC, the risk of disturbance to Harbour Seals posed by an expansion of aquaculture is not considered significant given the locations of areas for which applications have been received (tend to be more exposed) and thus away from identified seal haul-out sites (sheltered areas). Notwithstanding, operators should note sensitive times of years for seals and tailor their activities to minimise any potential disturbance.

Conclusion 3: The aquaculture activities proposed do not pose a threat to otter in the Galway Bay Complex

Fisheries interactions with SAC habitats and species

Conclusion 1: The dredge fishery for oyster poses a significant risk to maerl and seagrass community types and this risk should be mitigated.

Conclusion 2: Lobster and pot fisheries occur on maerl and seagrass habitats. These activities may pose a risk to the conservation objectives of these habitats. Additional information should be gathered on the intensity of potting activity and on the effects of pots and associated anchors and ropes on these community types.
**Conclusion 3:** All other fisheries (dredge, set net, bottom trawl, pelagic trawl, hand gathering) pose no or low risks to qualifying interests of the SAC and are unlikely to compromise the conservation objectives for the site.

**Aquaculture and Fisheries interactions with SPA features**

**Conclusion 1:** This assessment has not identified any significant, or near-significant, potential displacement impacts from aquaculture or fisheries activities on the following SCIs of Inner Galway Bay SPA: Light-bellied Brent Goose, Wigeon, Teal, Shoveler, Red-breasted Merganser, Grey Heron, Oystercatcher, Golden Plover, Lapwing, Dunlin, Bar-tailed Godwit, Curlew, Redshank, Turnstone, Black-headed Gull and Common Gull. Therefore, no impacts to the conservation objectives for these species are predicted.

**Conclusion 2:** The actual potential displacement impact from aquaculture activities on Great Northern Diver and Cormorant is considered to be less than 2%. However, there may also be potential in-combination effects with displacement from the proposed Galway Harbour Extension. If this additional displacement raised the overall level to 5% or more, this would have a negative impact on attribute 2 (distribution) of the conservation objective for these species, but would not have a negative impact on attribute 1 (population trend). In addition, there may be negative impacts for additional attributes listed for the Cormorant breeding population.

**Conclusion 3:** The predicted cumulative displacement impact from the in-combination effects of all aquaculture activities on Ringed Plover is 0.8%. However, there is potential additional displacement of this species from the intertidal clam and oyster plots on Island Eddy, and there is also potential in-combination effects with disturbance impacts from intertidal recreation and/or habitat loss. If these raised the overall displacement level to 5% or more, this would have a negative impact on attribute 2 (distribution) of the conservation objective for this species, but would not have a negative impact on attribute 1 (population trend).

**Conclusion 4:** There are potential impacts to food resources for Sandwich Tern and Common Tern from bottom mussel cultivation, which have not been quantified. This could significantly reduce the prey biomass available (attribute 4 of the conservation objective for this species), and, ultimately, could affect the productivity rate (attribute 3) and abundance (attribute 1) of the breeding colony. Due to lack of information about the distribution of foraging terns in Inner Galway Bay, it is not possible to discount potential negative impacts from bottom mussel cultivation in the Rinville Bay plots to the Inner Galway Bay SPA Sandwich Tern and Common Tern populations.