Report supporting the Appropriate Assessment Screening of Intensive Aquaculture (T06/202) in Kenmare River SAC [Site Code: 002158] and Deenish Island and Scariff Island SPA [Site Code 004175]

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Glossary of Acronyms

AA	Appropriate Assessment
CM	Conservation measure
COs	Conservation Objective(s)
DAFM	Department of Food Agriculture and the Marine
DEHLG	Department of Environment, Heritage, and Local Government
EIAR	Environmental Impact Assessment report
European site	Natura 2000 site
FCS	Favourable conservation status
IROPI	Imperative reasoning of overriding public interest
Natura 2000	Network of nature protection areas, Including the SACs and SPA designated under the Habitats Directive
NPWS	National Parks and Wildlife Service
QIs	Qualifying Interest(s)
SAC	Special Area(s) of Conservation
SCI	Special Conservation Interest(s)
SPA	Special Protected Area(s)

Executive Summary

The Marine Institute has been requested to review an application for an aquaculture (review and renewal) and a foreshore licence, application reference T06/202, for intensive salmon aquaculture activities at Deenish Island, which is situated within the Kenmare River SAC [002158] and Deenish Island and Scariff Island SPA [004175], and conduct a review of the NIS supplied by the applicant.

The application documents for Deenish (T06/202) present a proposed 24-month production cycle commencing in March of Year 1 which is based on the growth cycle of S1 smolts. Sixteen months of the cycle are designated for growth of salmon with the harvest period occurring over a five-month period from July through November of year 2. The site is proposed to lie fallow for three months (December through February of Year 2) prior to commencement of next growth cycle. The proposed growth cycle is limited to a Maximum Allowable Biomass of 2200 T and will produce approximately 2672 T of salmon per growth cycle. Fish harvested from the farm would be certified and marketed as organic product.

The review of the NIS supplied by the applicant confirmed that it contains the necessary information to progress to the next stage of the licensing process.

The proposed site overlaps with 1 SPAs and 1 SAC, and is adjacent to 2 other SACs and 12 SPAs are within the zone of influence.

The stage 1 screening process has identified the following QIs and associated conservation features in the SACs that the proposed aquaculture activities spatially overlap with and/or has the potential to significantly affect, so will be carried forward for full Assessment in Stage 2.

- Kenmare River SAC (002158)
    - Large Shallow Inlets and Bays [1160]
    - Reefs [1170]
    - Lutra lutra (Otter) [1355]
    - *Phoca vitulina* (Harbour Seal) [1365]
- Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (000365), Glanmore Bog SAC (001879), & Blackwater River SAC (0021730)
    - *Salmo salar* (Salmon) [1106]
    - *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029]

The technical review conducted by WS Atkins Ireland Limited screened in the following list of QIs for SPAs:

- Arctic Tern (*Sterna paradisaea*)
- Cormorant (*Phalacrocorax carbo*)
- Fulmar (*Fulmarus glacialis*)
- Gannet (*Morus bassanus*)
- Guillemot (*Uria aalge*)
- Herring Gull (*Larus argentatus*)
- Kittiwake (*Rissa tridactyla*)
- Lesser Black-backed Gull (*Larus fuscus*)
- Manx Shearwater (*Puffinus puffinus*)
- Peregrine (*Falco peregrinus*)
- Puffin (*Fratercula arctica*)

- Razorbill (*Alca torda*)
- Red-throated Diver (*Gavia stellata*)
- Shag (*Phalacrocorax aristotelis*)
- Storm Petrel (*Hydrobates pelagicus*)
- Common Tern (*Sterna hirundo*)
- Great Black-backed Gull (*Larus marinus*)
- Black Guillemot (*Cepphus grille*)

On the basis that likely significant effects of the proposed activity on the European sites cannot be excluded, these QIs are brought forward for full assessment in the Stage 2 Appropriate Assessment.

PREFACE

Articles 3 to 9 of the European Community (EC) Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna (commonly known the Habitats Directive) provide the legislative means to protect habitats and species of community interest through the conservation of an EU-wide network of protected sites known as Natura 2000 sites.

The Habitats Directive was implemented into national law under Regulation 31 of the Habitats Regulations SI 94/1997 and subsequently amended and consolidated in the European Communities (Birds and Natural Habitats) Regulations 2011. Following the requirements of Article 6(3) an Appropriate Assessment (AA) is required if a plan or project is likely to have a significant effect on the features for which the site is designated, either individually or in combination with other plans or projects, and it is not connected with or necessary for the management of a protected site. The AA is to assess whether the plan or project will have any adverse effect on the integrity of Natura 2000 site(s) in view of the Conservation Objectives set for the features (habitats and/or species) for which the site(s) is designated.

Natura 2000 sites in Ireland, that form part of the Natura 2000 European network of protected sites, include Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). SACs are designated due to their significant ecological importance for species and habitats protected under Annex I and Annex II respectively of the Habitats Directive. SPAs are designated for the protection of populations and habitats of bird species protected under the EU Birds Directive (Council Directive 2009/147/EC on the conservation of wild birds). The features for which SACs and SPAs are designated are respectively called Qualifying Interests and Special Conservation Interests (also collectively referred to as conservation features). The National Parks and Wildlife Service (NPWS) are the competent authority for the management of Natura 2000 sites in Ireland.

Aquaculture operations existed in coastal areas prior to the designation of areas as SACs and SPAs under the Directives. Ireland is undertaking AA of existing and proposed aquaculture activities in SACs and SPAs. This is an incremental process, as agreed with the EU Commission in 2009, and will ultimately cover all aquaculture activities in all Natura 2000 sites. AA of aquaculture operations are carried out against the Conservation Objectives for the conservation features of the Natura 2000 site, as defined by the NPWS.

Aquaculture activities are licenced by the Department of Agriculture, Food and Marine (DAFM). DAFM receives applications to undertake such activity and submits a set of applications, and current existing licences, for AA. If the AA process finds that the possibility of significant adverse effect cannot be discounted or that there is a likelihood of negative consequence for the conservation features for which a site is designated, then such activities will need to be mitigated further if they are allowed to continue. The assessment reports are not always explicit on how this mitigation might be achieved but rather indicate whether mitigation is required or not and what results should be achieved.

This report supporting the AA, informs part of the assessment process – Stage 1 Screening.

1 Introduction

The Marine Institute has been requested to review an application for an aquaculture (review and renewal) and a foreshore licence, application reference T06/202, for intensive salmon aquaculture activities at Deenish Island, which is situated within the Kenmare River SAC [002158] and Deenish Island and Scariff Island SPA [004175] , and conduct a review of the NIS supplied by the applicant.

This is an Appropriate Assessment Screening document supporting that Appropriate Assessment. The report assesses the potential for the proposed aquaculture activities to have significant effects of on the Qualifying Interests (**QIs**) of the Natura 2000 SACs and any adjacent sites. This report also includes a review of the NIS supplied by the applicant to confirm it contains the necessary information to progress to the next stage of the licensing process.

Intensive fish farming is defined in Aquaculture (Licence Application) Regulations, 1998 (as amended[1]) as "aquaculture activities where the biomass produced is beyond that which could be naturally supported without the provision of additional feed". Fed finfish aquaculture (e.g., salmon, trout) falls within this definition.

This report is to consider if the proposed activities are likely to significantly affect the Qualifying Interests (QIs) of Natura 2000 sites in view of their Conservation Objectives (COs), and any adjacent sites. This is achieved, in the first instance, by following the screening process outlined in this document. If there is potential for the activities considered to likely, significantly affect QIs and their conservation features, they will be carried forward for full assessment and considered on a cumulative basis with other potentially disturbing activities (e.g., fisheries).

1.1 Legislative Context

Articles 3 - 11 of the European Community (EC) Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna (the **Habitats Directive[2]**) provide the legislative means to protect habitats and species of Community interest through the conservation of an EU-wide network of protected sites, known as **Natura 2000** sites[3].

The Habitats Directive was originally transposed into Irish law by the European Communities (Natural Habitats) Regulations, 1997 (S.I. No. 94 of 1997). The 1997 Regulations were subsequently replaced by the *European Communities (Birds and Natural Habitats) Regulations 2011*[4], as amended (referred to as the *2011 Birds and Natural Habitats Regulations*). Natura 2000 sites are referred to as European sites in these Regulations. The terms Natura 2000 sites and European sites are synonymous - the term Natura 2000 sites is used in this report. Natura 2000 sites include Special Areas of Conservation (**SACs**) which are designated under the Habitats Directive, and Special Protected Areas (**SPAs**) which are designated under EC Directive EC 79/409/EEC (the **Birds Directive[5]**).

SACs are designated due to their significant ecological importance for habitats and for species protected under Annex I and Annex II respectively of the Habitats Directive. SPAs are designated for

[1] S.I. No. 236/1998 —Aquaculture (Licence Application) Regulations (consolidated version) https://www.gov.ie/pdf/?file=https://assets.gov.ie/264584/7c297e21-8bea-4d15-abaa-79ef60ecd1d7.pdf#page=null

[2] https://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

[3] https://ec.europa.eu/environment/nature/natura2000/index_en.htm

[4] European Communities (Birds and Natural Habitats) Regulations 2011 to 2021 (Unofficial Consolidation) NPWS Link

[5] https://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm

the protection of populations and habitats of bird species protected under the Birds Directive. The specific named habitats and/or (non-bird) species for which an SAC or SPA are selected are called the Qualifying Interests **(QI)**, of the site. The specific named bird species for which a SPA is selected is called the 'Special Conservation Interests' (**SCI**). However, in practice, the common terminology of QI applies also to SCI. The term QI is used throughout this report.

Under Article 6(3) of the Habitats Directive any plan or project likely to significantly affect the integrity of a Natura 2000 site must be subject to an Appropriate assessment (AA). The AA focuses on the likely significant effects of a plan or project on a Natura 2000 site and considers the implications for the site in view of its **Conservation Objectives (COs)**. Natura 2000 sites have COs which are set out by the National Parks and Wildlife Service (**NPWS**) - the competent authority for the management of Natura 2000 in Ireland. The AA process must also consider any plan or proposal in combination with other activities that have the potential to significantly affect the integrity of the Natura 2000 site.

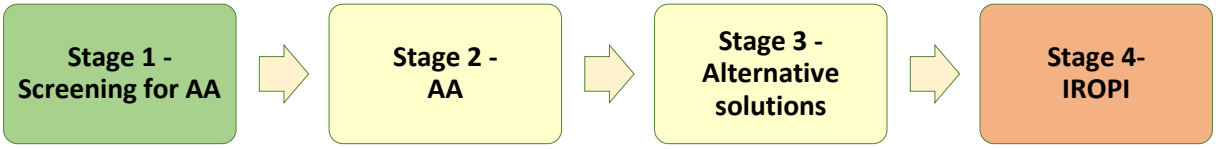
DAFM is the aquaculture licensing authority under the *Fisheries (Amendment) Act (1997)*[6] and has responsibility for foreshore licensing functions in respect of activities wholly or primarily for the use, development or support of aquaculture under the Foreshore Act (1933)[7]. They determine applications for new, or renewal of, aquaculture and foreshore licences. They are also the competent authority responsible for undertaking AA of aquaculture licence applications. As part of the licensing process DAFM must determine if the proposed aquaculture activities, individually or in-combination with other activities, are likely to significantly impact the Conservation Status of QIs and the integrity of the Natura 2000 site. DAFM must base its determination on an AA and is also responsible for ensuring that an AA is carried out.

1.2 Appropriate Assessment (AA) Process

The requirement for an AA derives directly from Article 6(3), which outlines the decision-making tests for considering plans and projects that may have a significant effect on a Natura 2000 site. No definition of the content or scope of AA is given in the Habitats Directive, but the concept and approach are set out in EC guidance [8]. The *Guidance on Appropriate Assessment of Plans and Projects in Ireland* document[9] published by the Department of Environment, Heritage and Local Government (DEHLG) in 2009, sets out how an AA of plans or proposals in Natura 2000 sites in Ireland should be carried out in alignment with EC guidance. In 2021, the Office of the Planning Regulator (OPR) published a practice note on AA Screening[10], which provides guidance on how a planning authority should screen an application for planning permission for AA.

The *Guidance on Appropriate Assessment of Plans and Projects in Ireland* document promotes a four stage process to complete the AA. The four stages are:

[6] Fisheries (Amendment) Act, 1997 Lawreform.ie
[7] Foreshore Act 1933 Revised Acts (lawreform.ie)
[8] EC 2018. Guidance on Aquaculture and Natura 2000 Sustainable aquaculture activities in the context of the Natura 2000 Network Link
[9] DEHLG, 2009. Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities. Link
[10] OPR - Office of Planning Regulator (2021). Appropriate Assessment Screening for Development Management. March 2021. 43pp Link



The key procedures involved in completing the first two stages of the AA process are described below. Stage 3 and Stage 4 (Imperative reasoning of overriding public interest) are not applicable here.

Stage 1: Appropriate Assessment Screening

Stage 1 AA Screening is the process that addresses and records the reasoning and conclusions in relation to whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of the site's COs. If the effects, on the basis of objective information, are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to *Stage 2 Appropriate Assessment*. Screening should be undertaken without the inclusion of mitigation. A high level of evidence and justification will be needed in circumstances when the process ends at screening stage on grounds of no effect.

Stage 2: Appropriate Assessment

This stage considers whether the plan or project, alone or in combination with other projects or plans, will have adverse effects on the integrity of a Natura 2000 site, and can consider any mitigation measures necessary to avoid, reduce or offset negative effects. This stage requires a targeted scientific examination of the plan or project and the relevant Natura 2000 sites, to identify and characterise any possible implications for the site in view of the site's QIs and COs, taking account of in combination effects.

The sensitivity of identified QIs in relation to the proposed activities is assessed and the significance of any identified adverse effects is the then determined. If adverse effects are determined to be likely, then their scale, magnitude, intensity, and duration are considered in light of the COs and relevant guidance documents. If the assessment is negative, then recommendations on mitigation measures or on licensing decisions will be made.

1.3 Structure of AA Screening Report

This report provides:

1. **Introduction -** an outline of the legislative context and the processes.
2. **Appropriate Assessment Screening -** providing details of the AA screening undertaken.
3. **NIS Review** - a review of the NIS supplied by the applicant.
4. **Conclusion** - a summary of the findings from the screening process.

1.4 Data sources

This process and report relies on data and information from a broad range of diverse sources. Some of the key sources of information that are generally viewed, consulted and/or utilised to inform the

screening and AA processes are listed below. Others are consulted as required, and significant sources are cited in the reports.

Reference documents and Sources of information used to inform this process include:

- The Application
- The Environmental Impact Assessment report (EIAR)
- DAFM Aquaculture & Foreshore Management website
- DAFM - Aquaculture viewer – AquaMIS
- National Parks & Wildlife (NPWS) protected site information for NPWS website, including conservation objectives
- NPWS development applications guidance documents
- BIM aquaculture profiling reports
- Targeted scientific studies
- Primary research literature
- Grey literature, reviews and report documents
- Expert opinion
- Direct queries to applicants through DAFM
- Fisheries (Amendment) Act 1997
- Aquaculture (Licence Application) Regulations, 1998
- Aquaculture (Licence Application) (Amendment) Regulations 2018
- Ireland's Marine Atlas, Marine Institute
- MI/BIM Inshore fishing reports (from websites)
- DHPLG Foreshore licencing database
- Maritime Area Regulatory Authority (MARA)
- EPA GeoHive
- EPA maps tool
- NPWS Article 17 Reports - Status of EU Protected Habitats and Species in Ireland
- Birdwatch Ireland website
- EC Article 12 web tool on population status and trends of birds
- Marine Life Information Network
- EPA Catchments.ie dashboard
- Ordnance Survey of Ireland (OSI)
- National Biodiversity Data Centre
- European Environmental agency
- OPR, 2021. Appropriate Assessment Screening for Development Management. March 2021; Office of Planning Regulator.
- Official Journal of the EU. 2021. Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive.
- DEHLG, 2009. Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities. NPWS, 2009 – updated in 2010 with reference to Natura Impact Statement.
- NPWS (2019). The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview. Edited by: Deirdre Lynn and Fionnuala O'Neill
- NPWS (2019). The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments. Edited by: Deirdre Lynn and Fionnuala O'Neill
- NPWS (2019). The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments. Edited by: Deirdre Lynn and Fionnuala O'Neill

- Möckel, S., 2017. The European ecological network “Natura 2000” and the appropriate assessment for projects and plans under Article 6 (3) of the Habitats Directive. Nature Conservation, 23.
- EC Article 6 - Managing and protecting Natura 2000 sites
- EC Management of Natura 2000 sites: Best Practice
- EC 2000. Managing Natura 2000 sites: The provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC. Office for Official Publications of the European Communities, Luxembourg.
- EC 2002. Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Office for Official Publications of the European Communities, Luxembourg.
- EC 2006. Nature and biodiversity cases: Ruling of the European Court of Justice. Office for Official Publications of the European Communities, Luxembourg.
- EC 2018. Guidance on Aquaculture and Natura 2000 Sustainable aquaculture activities in the context of the Natura 2000 Network.
- EC 2012. Common methodology for assessing the impact of fisheries on marine Natura 2000. Service Contract No. 070307/2010/578174/SER/B. DGEnv Brussels.
- Poelman *et al*., 2022. Study on state-of-the-art scientific information on the impacts of aquaculture activities in Europe.
- Federal Agency for Nature Conservation for the FFH impact assessment
- MI 2023 a-h, ABPMer. Tools for Appropriate Assessment of Fishing and Aquaculture Activities in Marine and Coastal Natura 2000 Sites
- Marlin.ac.uk
- AMBI Sensitivity Scale
- MarESA
- Marine Institute. 2013. A risk assessment framework for fisheries in Natura 2000 sites in Ireland: with case study assessments. Version 1.3. Galway, 31pp.
- Open Street Maps, Google Earth, and Bing aerial photography

1.5 Assumptions made for Appropriate Assessment Reports

Certain assumptions are made for this screening report as it applies to aquaculture licencing, to ensure that it follows a precautionary approach when considering the extent, magnitude, intensity, and duration of the potential significant effects of the proposed activities. These are:

- All aquaculture sites considered in this assessment report are assumed to be fully operational and that the operations (as well as environmental impacts) are occurring across the entire area of the sites, at a minimum.
- Any aquaculture applications which were submitted prior to that being considered here, but still pending decisions (e.g., in process, under appeal, etc.), are also assumed to be fully operational across the entire area of the relevant sites. This ensures a conservative approach, in that it assumes these activities will be operational to the maximum extent possible.
- Other assumptions identified on a case-by-case basis and clearly communicated in the AA report.

2 Appropriate Assessment Screening

2.1 Assessment of Aquaculture Activities

The Marine Institute has been requested to review an application for an aquaculture (review and renewal) and a foreshore licence, application reference T06/202 (Figure 1), for intensive salmon aquaculture activities at Deenish Island, which is situated within the Kenmare River SAC [002158] and Deenish Island and Scariff Island SPA [004175].

This section identifies, in detail, the proposed aquaculture activities to be considered as part of the screening exercise in this report, and then considers whether the proposed activities are likely to significantly affect the QIs of the Natura 2000 sites, in view of their Conservation Objectives (COs).

This is achieved by following the Screening Process as outlined in Section 2.3. If there is potential for the activities considered to have likely significant effects on the QI and their conservation features, they will be carried forward for full assessment. These activities are then considered in-combination with similar aquaculture practices and on a cumulative basis with other aquaculture activities and other potentially impacting activities (e.g. fisheries).

Details of Proposed Aquaculture Activities

The Deenish fish farm site is located in Kenmare River, to the east of Deenish island. The site has been operational since 1995. The proposed licence (T06/202) application requests:

- a maximum allowable biomass (MAB) of 2,200 T at the site, which is a change from the existing licence which allows for an annual harvest restriction of 500 T.
- an expansion of the boundaries of the licensed area from 14.5 ha to 33.5 ha.

A maximum of 15 pens (3 x 5) will be deployed at the site. Pens will have a 126 m circumference, net wall depth of 11 m and cone depth of 9 m. Total cubic capacity will be approximately 265,577 m^3.

The site will be operated under a 2-year production cycle. Months 1-16 (March Y1 – Feb Y2) will be used for growing out salmon, months 17-21 (March Y2 – November Y2) will be for harvesting and there will be a fallow period from months 22-24 (December Y2 – February Y2). The proposed production cycle will produce approximately 2,672 T of salmon per growth cycle. A feed barge (length 24 m x beam 10 m) would be used to feed the stock automatically via a pipe distribution system using compressed air.

The site would always be operated under the organic standard[11], effectively limiting peak stocking density to 10 kg fish per m^3 water. The applicant states that the proposed Deenish operation will use the harbours at Westcove and Derrynane Pier in County Kerry and Ballycrovane, Travara, and Castletownbere in County Cork.

[11] Certified under Irish Organic salmon, Naturland, and BioSuisse organic standards

2.2 Identification of Relevant Natura 2000 Sites and QIs

The proposed site overlaps with 1 SPAs and 1 SAC, while 2 other SACs and 11 SPAs are within the zone of influence (**Table 2-1** and **Table 2-3**) of the project. The relevant Natura 2000 sites (**Figure 1** and **Figure 3)** and their QIs or conservation features, as well as their objectives and targets are detailed in the next sections.

SACs

SAC within 15 km are considered as within the zone of influence of the project. A list of SACs that could be potentially affected by the proposed project have been identified and are listed in Table 2-1, and displayed in Figure 1. Their details and QIs are listed and tabulated below.

Table 2-1 List and details of SAC sites overlapping or adjacent to the area of the proposed activity

Natura site	Site code	Distance from Natura site at nearest point (km)	Reference
Kenmare River SAC	002158	0	Link
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC	000365	5.4	Link
Ballinskelligs Bay and Inny Estuary SAC	000335	5.5	Link

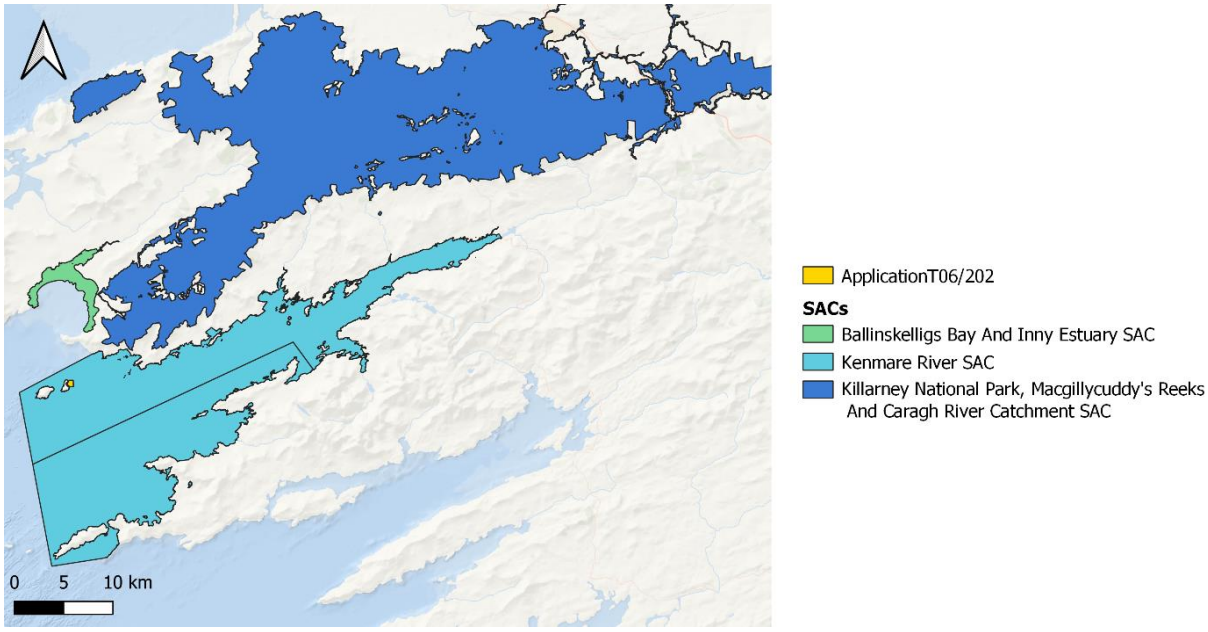


Figure 1 Map of Kenmare River SAC and all adjacent SACs within 15km of project site.

2.2.1.1 *Kenmare River SAC (Site 002158)*

2.2.1.1.1 Kenmare River SAC site description (Site 002158)

Kenmare River SAC is a long and narrow south-west facing bay situated in the south west of Ireland. The extent of the SAC and its constituent marine community types is shown in **Figure 2** below. Kenmare River has an exceptional complement of marine and terrestrial habitats associated with exposed coasts and ultra-sheltered bays. Numerous islands and inlets along the length of the bay provide areas of additional shelter in which a variety of habitats occur. Kenmare River SAC is designated for the marine Annex I QIs of Large hallow inlets and bays (1160), Reefs (1170) (See **Figure 2**) and Submerged or partially submerged Sea caves (8330) (See **Figure 6**). The Annex I habitat Large shallow inlets and bays is a large physiographic feature that may wholly or partially incorporate other Annex I habitats including Reefs and Submerged sea caves within its area. A number of coastal habitats can also be found in the SAC, including Fixed coastal dunes with herbaceous vegetation (grey dunes), Vegetated sea cliffs of the Atlantic and Baltic coasts and shifting dunes along the shoreline with *Ammophilia arenaria* ("white dunes").

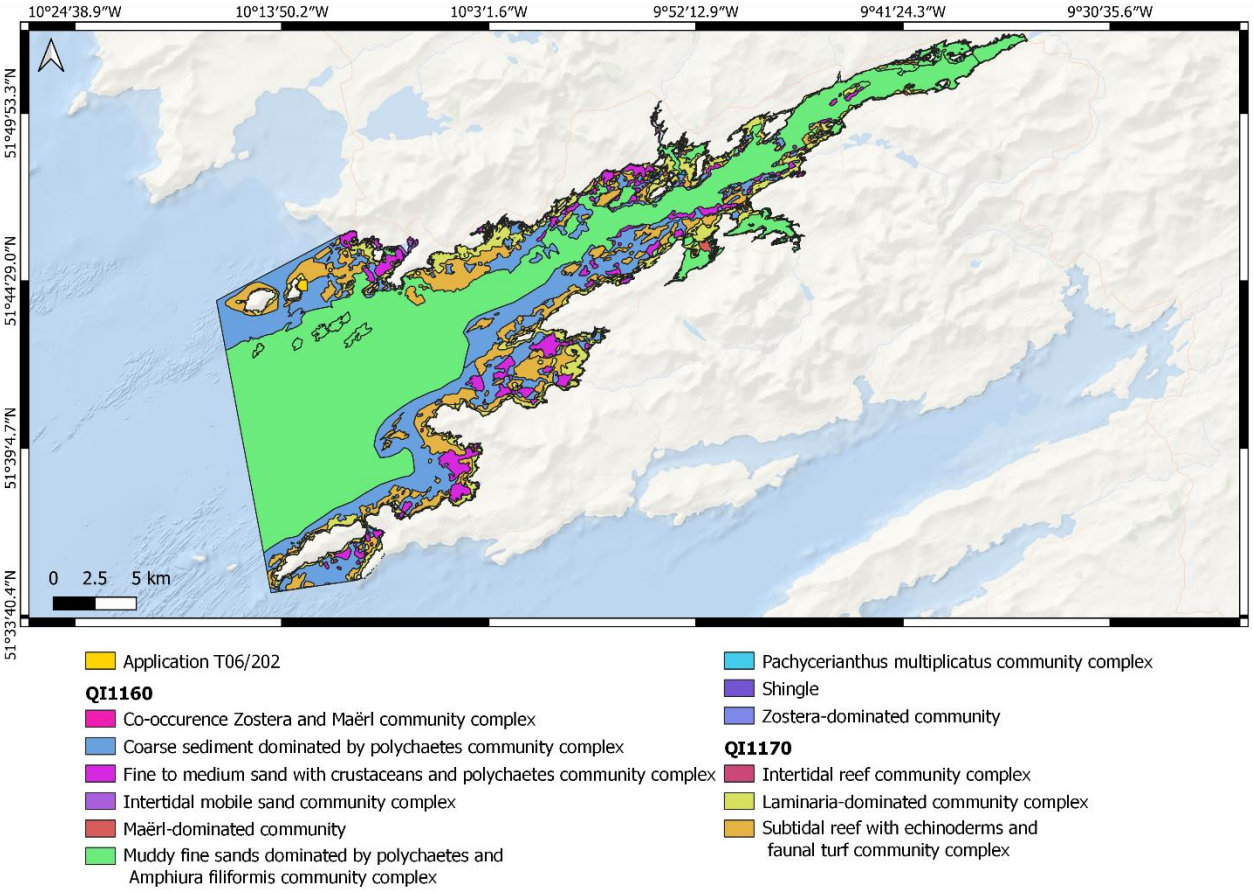


Figure 2 Map of all marine community types in Kenmare River SAC QIs 1160 and 1170

2.2.1.1.2 Conservation Objectives for Relevant Natura site

This section provided the QIs, COs and targets[12] for the Kenmare River SAC. Some important targets of the Conservation Objectives are, that the natural condition of the designated features should be preserved with respect to their area, distribution, extent and community distribution. Habitat

[12] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002158.pdf

availability should be maintained for designated species and human disturbance should not significantly affect such species.

Table 2-2: COs and Targets for the QIs in Kenmare River SAC (Site Code 002158)[13,14]. Annex I and II features listed in bold.

QIs and Conservation Features	Objective	Target(s)
Large shallow inlets and bays	To maintain favourable conservation condition	39,322ha; Targets are identified that focus on a wide range of attributes with the ultimate goal of maintaining function and diversity of favourable species and managing levels of negative species.
(Intertidal mobile sand community complex)	To maintain favourable conservation condition	63.07ha; Maintained in a natural condition
(*Zostera* dominated communities)	To maintain favourable conservation condition	20.04ha; Maintain natural extent and high quality of *Zostera* dominated communities
(Maërl-dominated community)	To maintain favourable conservation condition	46.82ha; Maintain natural extent and high quality of Maërl dominated communities
(*Pachycerianthus multiplicatus* community)	To maintain favourable conservation condition	6.23ha; Maintain natural extent and high quality of *Pachycerianthus multiplicatus* community
(Muddy fine sands dominated by polychaetes and *Amphiura filiformis* community complex)	To maintain favourable conservation condition	20,141.20ha; Maintained in a natural condition
(Fine to medium sand with crustaceans and polychaetes community complex)	To maintain favourable conservation condition	1987.75ha; Maintained in a natural condition
(Coarse sediment dominated by polychaetes community complex)	To maintain favourable conservation condition	8,309.80ha; Maintained in a natural condition
(Shingle)	To maintain favourable conservation condition	1.42ha; Maintained in a natural condition
(Intertidal reef community complex)	To maintain favourable conservation condition	525.46ha; Maintained in a natural condition
(*Laminaria*-dominated community complex)	To maintain favourable conservation condition	3,356.63ha; Maintained in a natural condition
(Subtidal reef with echinoderms and faunal turf community complex)	To maintain favourable conservation condition	4805.86ha; Maintained in a natural condition
Reefs	To maintain favourable conservation condition	9,196ha; The distribution and permanent area is stable or increasing, subject to natural processes.
(Intertidal reef community complex)	To maintain favourable conservation condition	680.26ha; Maintained in a natural condition
(Subtidal reef with echinoderms and faunal turf community complex)	To maintain favourable conservation condition	4,835.43ha; Maintained in a natural condition
(Laminaria-dominated community complex)	To maintain favourable conservation condition	3,676.57ha; Maintained in a natural condition
Perennial vegetation of stony banks	To maintain favourable conservation condition	Area unknown; Targets are identified that focus on a wide range of attributes with the ultimate goal of maintaining function and diversity of favourable species and managing levels of negative species.
Vegetated sea cliffs of the Atlantic and Baltic coasts	To maintain favourable conservation condition	>72.2ha; Targets are identified that focus on a wide range of attributes with the ultimate goal of maintaining function and diversity of favourable species and managing levels of negative species.
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	To maintain favourable conservation condition	2.65ha; Targets are identified that focus on a wide range of attributes with the ultimate goal of

[13] NPWS. 2013. Conservation Objectives for Kenmare River SAC (002158). Version 1.0. Department Arts, Heritage and the Gaeltacht. Version 1 (25 April, 2013); 27pp.
[14] NPWS. 2013. Kenmare River SAC (002158): Conservation Objectives supporting document – marine habitats and species. Department Arts, Heritage and the Gaeltacht. Version 1 (March 2013); 34pp.

QIs and Conservation Features	Objective	Target(s)
		maintaining function and diversity of favourable species and managing levels of negative species.
Mediterranean salt meadows (*Juncetalia maritimi*)	To maintain favourable conservation condition	17.90ha;Targets are identified that focus on a wide range of attributes with the ultimate goal of maintaining function and diversity of favourable species and managing levels of negative species
Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")	To maintain favourable conservation condition	1.67ha;Targets are identified that focus on a wide range of attributes with the ultimate goal of maintaining function and diversity of favourable species and managing levels of negative species
Fixed coastal dunes with herbaceous vegetation (grey dunes)	To maintain favourable conservation condition	20.41ha; Targets are identified that focus on a wide range of attributes with the ultimate goal of maintaining function and diversity of favourable species and managing levels of negative species
European dry heaths	To maintain favourable conservation condition	>300ha; Targets are identified that focus on a wide range of attributes with the ultimate goal of maintaining function and diversity of favourable species and managing levels of negative species and disturbance
Calaminarian grasslands of the *Vioetalia claminariae*	To maintain favourable conservation condition	3.1ha: Targets are identified that focus on a wide range of attributes with the ultimate goal of maintaining function and diversity of favourable species and managing levels of negative species and disturbance (soil toxicity).
Submerged or partially submerged sea caves	To maintain favourable conservation condition	Area unknown; Targets relate to maintaining distribution and managing human activities.
Narrow mouthed whorl snail - *Vertigo angustior*	To maintain favourable conservation condition	A single site is identified for this species and targets relate to maintaining adult and sub-adult densities and overall habitat quality.
Otter *Lutra lutra*	To restore favourable conservation conditions	Maintain distribution - 88% positive survey sites. 2748ha; No significant decline in extent of marine habitat; Couching sites and holts - no significant decline and minimise disturbance: Fish biomass - No significant decline in marine fish species in otter diet. Barriers to connectivity - No significant increase.
Harbour Seal *Phoca vitulina*	To maintain favourable conservation condition	The range of use within the site should not be restricted by artificial barriers; all sites should be maintained in natural condition; human activities should occur at levels that do not adversely affect Harbour Seal population at the site.
Lesser Horseshoe Bat (*Rhinolophus hipposideros*)	To maintain favourable conservation condition	The range of use within the site should not be restricted by artificial barriers; all sites should be maintained in natural condition; human activities should occur at levels that do not adversely affect the Lesser Horseshoe Bat population at the site.

The QIs of the Kenmare SAC could be at risk of negative effects where a Source-Pathway-Receptor (S-P-R) link exists between the proposed activity and the conservation features of the site and the risk cannot be dismissed. The screening for the presence of a S-P-R link and any potential significant effects of the proposed aquaculture activities on the QIs of the Kenmare River SAC is presented in the following sections.

2.2.1.2 *Details of Adjacent Natura 2000 Sites*

The proposed site is within the Kenmare River SAC (Site 002158). There are a number of Natura 2000 sites which are adjacent to the Kenmare River SAC (**Figure 1**). Natura 2000 sites within ~ 15km radius

are assessed with additional sites included due to potential interaction with migratory wild salmon (**Figure 1**, **Table 2-2**). The screening is largely based on spatial overlap. Their details and QIs are listed in **Table 2-4** for the SACs. The document *Deenish Salmon Farm: Technical Review of Screening for Appropriate Assessment: SPAs* addresses the SPAs. The screening results are presented in **Section 2.3.1.2**.

2.2.1.2.1 Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC

This very large site encompasses the mountains, rivers and lakes of the Iveragh Peninsula, and the Paps Mountains which stretch eastward from Killarney towards Millstreet. The majority of the site is in Co. Kerry, with a small portion in Co. Cork. This is the most mountainous region in Ireland and includes Carrauntoohil, the highest peak in the country at 1,039 m. The underlying geology is almost entirely Old Red Sandstone, although Carboniferous limestone occurs on the eastern shores of Lough Leane, and rhyolitic lavas occur above Lough Guitane. The dramatic sandstone ridges and valleys have been shaped by glacial processes and many of the lakes are impounded by glacial moraines. Located close to the Atlantic in the southwest of Ireland, the site is subject to strong oceanic influences. Generally, Lusitanian flora and fauna is well-represented, while the high peaks and cliffs support arcticalpine relicts. The most common habitat types within the overall site are blanket bog, heath and upland grassland.

The site is valuable for its rare fish species, five of which are listed on Annex II of the E.U. Habitats Directive: Brook Lamprey (*Lampetra planeri*), River Lamprey (*Lampetra fluviatilis*), Sea Lamprey (*Petromyzon marinus*), Atlantic Salmon (*Salmo salar*) and Killarney Shad (*Alosa fallax killarnensis*). The Pearl Mussel populations are of particular importance in a national context. The site supports most of the Irish mammal species, of particular note is the occurrence of two E.U. Habitats Directive Annex II species: Lesser Horseshoe Bat, with a total population of about 300 individuals distributed at several locations, including both nursery and hibernation sites, and Otter.

2.2.1.2.2 Ballinskelligs Bay and Inny Estuary SAC

This site is located at the western end of the Iveragh Peninsula, Co. Kerry, close to the town of Waterville. It comprises the marine waters of Ballinskelligs Bay, as far out as the five-fathom line, some adjoining terrestrial areas and the estuary of the River Inny upstream to Breahig townland. The site extends from Horse Island at the western end of the bay round to Rineen Point at its south-eastern side. Much of the site comprises shallow marine water, Ballinskelligs Bay, but it also supports a wide variety of other habitats, including intertidal mud/sand flats, sandy beaches, shingle, tidal river channels, sea cliffs, wet and dry grassland, freshwater marshes, swamps, cut-away bog, scrub, Bracken and saltmarsh.

Two types of saltmarsh occur on the site. Mediterranean salt meadows are characterised by the presence of Sea Rush (*Juncus maritimus*), while species such as Thrift (*Armeria maritima*) and Common Saltmarsh-grass (*Puccinellia maritima*) are typical of Atlantic salt meadows. A small area of sand dunes near to the mouth of the estuary supports a population of the rare liverwort species, Petalwort (*Petalophyllum ralfsii*). This species is protected under the Flora (Protection) Order, 1999 and is also listed on Annex II of the E.U. Habitats Directive.

The site is used in the winter by nationally important numbers of Common Scoter (953 individuals) and Ringed Plover (147 individuals), both counts from 1994/95 and 1996/97. The site is also commonly used by waders such as Oystercatcher (130 individuals) and Curlew (140 individuals).

A colony of Grey Seal, a protected species, occurs within the bay.

Human usage of the site includes fishing and tourist activities.

The site is of considerable conservation significance, particularly for the presence of two types of saltmarsh listed on Annex I of the E.U. Habitats Directive and of a population of *Petalophyllum ralfsii*, a species listed on Annex II of this Directive. Additionally, the site is of significance for the nationally important populations of Common Scoter and Ringed Plover that use it.

SPAs

The MI engaged a consultant (WS Atkins Ireland Limited) to carry out the process for SPAs in the zone of effect of the site. This review considered SPAs within 50 km of all salmon farms within Kenmare Bay, and considered the full list of QIs for each SPA, based on the latest NPWS documents. Table 2-3 gives the list of identified SPAs, with Figure 3 showing their locations in relation to the proposed site.

Table 2-3 List and details of SPAs overlapping or adjacent to the area of the proposed activity.

Natura site - SPAs	Site code	Distance from Natura site at nearest point (km)	Reference
Deenish Island and Scariff Island	IE004175	0	Link
Iveragh Peninsula	IE004154	3.30	Link
Beara Peninsula	IE004155	10.5	Link
Puffin Island	IE004003	16.1	Link
The Bull and The Cow Rocks	IE004066	16.4	Link
Skelligs	IE004007	20.0	Link
Sheep's Head to Toe Head	IE004156	32.8	Link
Castlemaine Harbour	IE004029	34.7	Link
Dingle Peninsula	IE004153	40.6	Link
Blasket Island	IE004008	41.2	Link
Eirk Bog	IE004108	43.4	Link
Killarney National Park	IE004038	46.5	Link

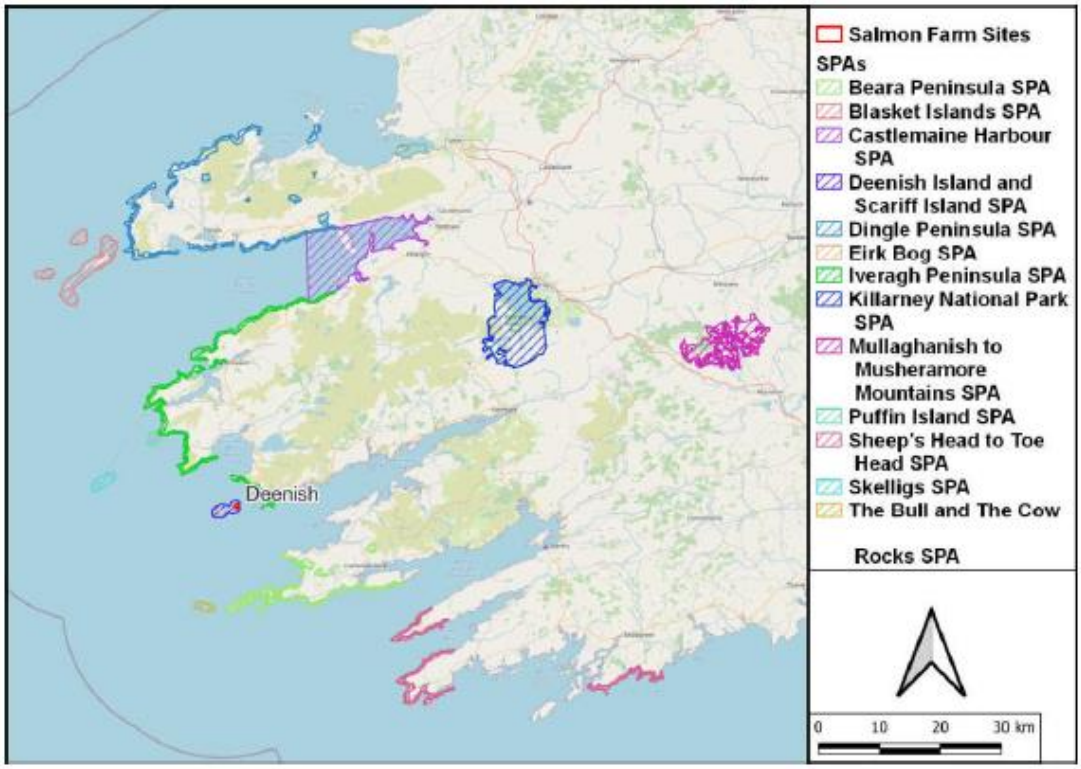


Figure 3 Map of SPAs overlapping or adjacent to the area of the proposed activity.

Detail of the process is provided in the full report, which is attached to this report as an Appendix.

2.3 Screening of QIs

A key consideration as to whether or not an activity is likely to significantly affect Natura 2000 QIs, is if there is a pathway of connectivity between the QI and the sources of potential impacts associated with the activity. The QIs could be at risk of effects where a Source-Pathway-Receptor (S-P-R) link exists between the proposed activities and the conservation features of the site, and the risk cannot be dismissed (**Figure 4**).

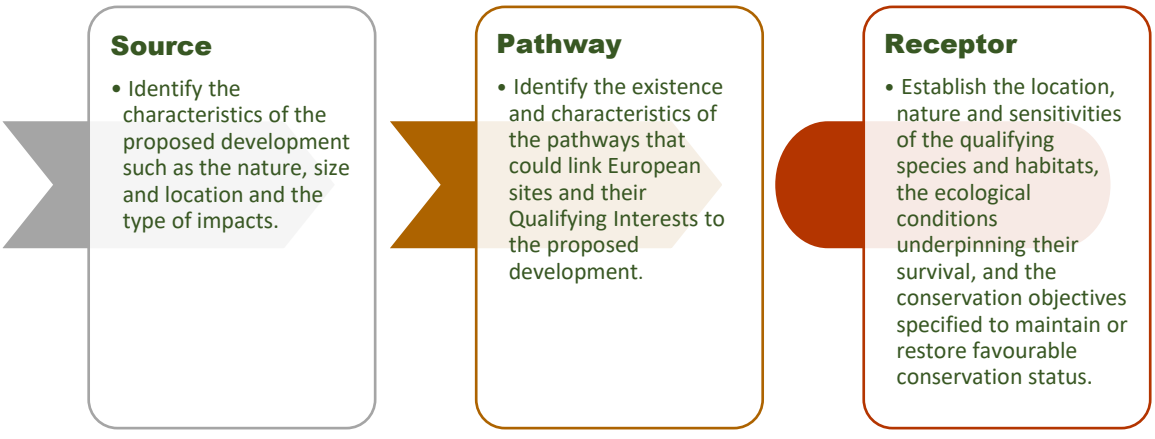


Figure 4 Example Source-Pathway-Receptor (S-P-R) link diagram.

The S-P-R model considers potential ecological links between the proposed activity and the qualifying interest of Natura 2000 site. The link can be direct and facilitated by terrestrial, aquatic and airborne

transfer of a particular pressure, or the nature and location of the activity may be indirect and interact at a functional level, and impact on behaviour or resource acquisition of a qualifying interest[15].

The screening for the presence of a S-P-R link and any potential significant effects of the proposed aquaculture activities on the QIs of the Natura will be presented in this Section. A screening assessment is an initial evaluation of the existence of S-P-R links between the proposed activities and any likely significant effects on the QIs. In this assessment, screening of the QIs against the proposed activities is, in the first instance, considered on the basis of direct spatial overlap. Indirect effects are also considered whereby the likely impact of the activity on behaviour or resources required by mobile species (mammals and birds, among others) is considered. Also considered are indirect effects facilitated by hydrological or other potential links (e.g. foraging range).

Where there is spatial overlap and reasonable potential for likely significant effects on QIs to arise, a full assessment (Stage 2) is warranted. In the instance where there is no spatial overlap between an activity and a QI, and no likely direct or indirect interactions apparent, the activity, therefore, may be screened out. If there is marginal spatial overlap but no reasonable potential for significant effects on QIs to arise then the activity may also be screened out.

The QIs of the adjacent Natura 2000 sites listed above could be at risk of effects where a S-P-R link exists between the proposed activities and the QIs of the site. The screening for the presence of a S-P-R link and any potential significant effects of the proposed aquaculture activities on the QIs of adjacent SACs and SPAs is presented here. The screening is undertaken without the inclusion of any mitigation measures.

Screening of QIs in the Relevant SACs

2.3.1.1 *Kenmare River SAC [002158]*

This section communicates the known information relating to the QIs in the Natura site and highlight any likely interactions with the proposed activity.

2.3.1.1.1 Terrestrial Habitats

The proposed activity considered in this report (T06/202) is located in the subtidal marine environment and does not spatially overlap with the shoreline and terrestrial habitats and species and therefore, there are no likely direct impacts. In addition, there are no indirect impacts likely on the basis that there are no significant emissions arising from travel to and from the sites and from activities associated with the culture of fish that will likely interact with these terrestrial habitats. It is concluded there are no apparent S-P-R links between the proposed extensive aquaculture activities and the QIs listed below.

- 1220 Perennial vegetation of stony banks.
- 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts.
- 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*).
- 1410 Mediterranean salt meadows (*Juncetalia maritimi*).
- 2120 Shifting dunes along the shoreline with (*Ammophila arenaria*) ("white dunes").

[15] Office of Planning Regulator, (2021). Appropriate Assessment Screening for Development Management. March 2021. 43pp

- 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes).
- 4030 European dry heaths.
- 6130 Calaminarian grasslands of the (*Violetalia calaminariae*).

These QIs are, therefore, screened out from further consideration in this report.

2.3.1.1.2 Lesser Horseshoe Bat in Kenmare River SAC [002158]

Kenmare River SAC is designated for the Annex II Species, Lesser Horseshoe bat (*Rhinolophus hipposideros*) [1303]. The designation is based on the presence of important winter and summer roosting sites in the SAC. In addition, numerous temporary roosts are likely to be used by this species throughout the SAC and beyond, thus emphasising the importance of this area for bats[16]. It is noted that the bats will not typically cross open ground and will use hedgerows and walls as well as other linear features to commuting to feeding areas (woodland and scrub)[17]. Given the location of the proposed aquaculture site is over open water, and distant from the nearest suitable bat habitat at Cleanderry Wood (approximately 19 km), the proposed activities are unlikely to result in any significant effect on Lesser Horseshoe Bat conservation features (roosting or feeding).

On this basis, the qualifying feature Lesser Horseshoe Bat (*Rhinolophus hipposideros*) [1303] is screened out from further consideration in the assessment.

2.3.1.1.3 Narrow-Mouthed Whorl Snail (*Vertigo angustior*) [1014]

A single site is identified for this Annex II species. This species prefers fixed dune, species-rich grassland, growing on damp, friable soil covered with a layer of humid, open structured thatch as habitat. The closest proposed aquaculture site to this is approximately 6 km. Any impact of the proposed activity is unlikely to impact on this species which is confined to terrestrial or semi-aquatic freshwater habitats.

On this basis, the qualifying interest Narrow-Mouthed Whorl Snail (*Vertigo angustior*) is screened out from further consideration in this report.

2.3.1.1.4 Marine Habitat Features 1160 & 1170 and Constituent Communities

Aquaculture pressures on a given habitat are related to its vulnerability to the pressures induced by culture activities. Vulnerabilities consider the likely interactions measured by spatial overlap or exposure of the habitat to the equipment, activities or culture organism, combined with the sensitivity of the habitat. To this end, the location and orientation of structures associated with the culture organism, the density of culture organisms, the duration of the culture activity, and the type of activity are all important considerations when considering risk of disturbance to habitat features and species.

The constituent communities identified in the Annex 1 feature, Large Shallow Inlets and Bays (1160) and Reefs (1170) are:

- Intertidal mobile sand community complex [1160]
- *Zostera*-dominated community [1160]

[16] NPWS. 2013. Conservation Objectives for Kenmare River SAC (002158). Version 1.0. Department Arts, Heritage and the Gaeltacht. Version 1 (25 April, 2013); 27pp.
[17] McAney, C. M. and J.S. Fairley. 1988. Activity patterns of the lesser horseshoe bat *Rhinolophus hipposideros* at summer roosts. Journal of Zoology. 216. 325-338p.

- Maerl-dominated community [1160]
- *Pachycerianthus multiplicatus* community [1160]
- Muddy fine sands dominated by polychaetes and *Amphiura filiformis* community complex [1160]
- Fine to medium sand with crustaceans and polychaetes community complex [1160]
- Coarse sediment dominated by polychaetes community complex [1160]
- Shingle [1160]
- Intertidal reef community complex [1160 and 1170]
- *Laminaria*-dominated community complex [1160 and 1170]
- Subtidal reef with echinoderms and faunal turf community complex [1160 and 1170]

Figure 5 shows the QI habitats that the proposed aquaculture site overlaps.

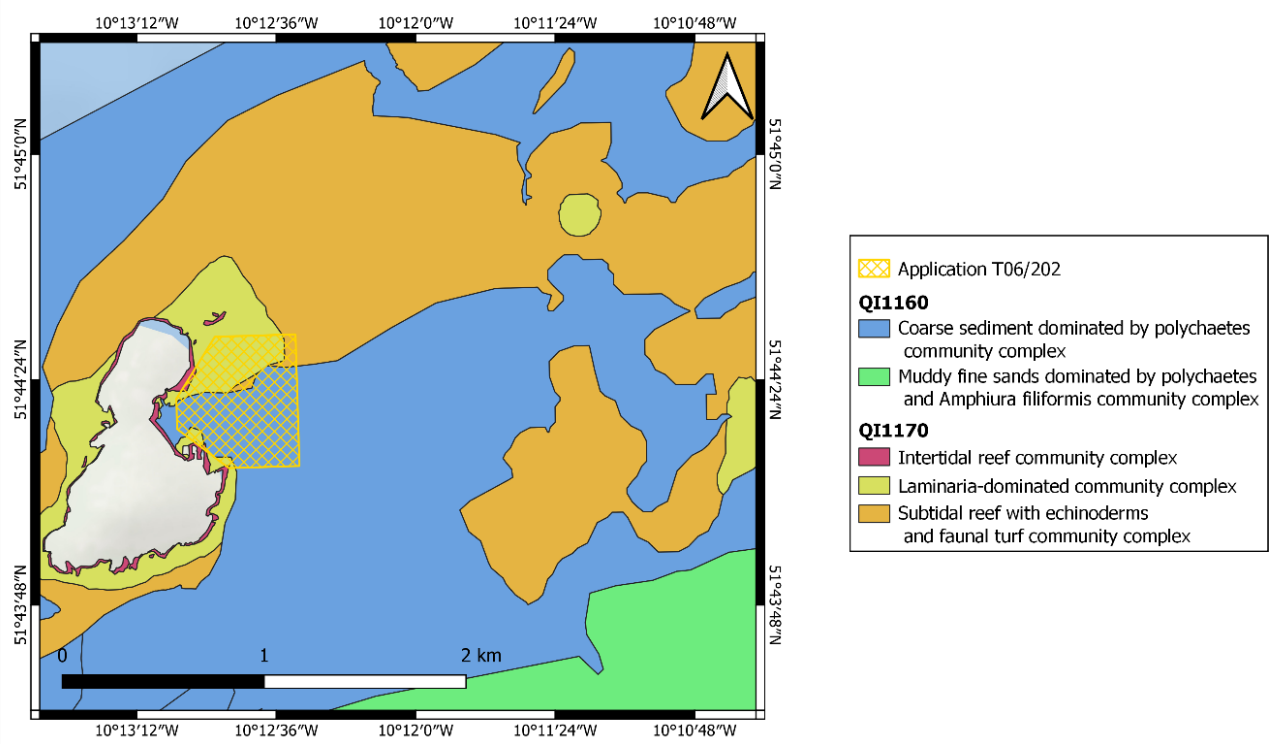


Figure 5 Map of QI habitats and MCT that spatially overlap with the proposed T06/202 site.

Deposition of organic waste (feed and faeces) from shallow (<50m) finfish aquaculture activities have been demonstrated to result in accumulation of organic matter beneath net pens with decreasing effects with increasing distance from aquaculture structures[18],[19]. Severity of impacts from organic enrichment are dependent on a number of factors including farm size, physical conditions (i.e. hydrodynamics around and within the farm site[20]) and husbandry practices at the farm site (i.e. growth cycle timing). Depending on the interaction of these factors, significant effects on marine community

[18] Strain, P.M., Hargrave, B.T. Salmon Aquaculture, Nutrient Fluxes and Ecosystem Processes in Southwestern New Brunswick. In: Hargrave, B.T. (eds) Environmental Effects of Marine Finfish Aquaculture. Handbook of Environmental Chemistry, vol 5M. Springer, Berlin, Heidelberg. https://doi.org/10.1007/b136003

[19] Forrest et al 2007. Review of the ecological effects of marine finfish aquaculture: final report. Prepared for Ministry of Fisheries. Cawthorn Report No. 1285. 71p

[20] Holmer M, Wildish D, Hargrave B (2005) Organic enrichment from marine finfish aquaculture and effects on sediment processes. In: Hargrave BT (ed.), The handbook of environmental chemistry, Vol. 5: Water pollution environmental effects of marine finfish aquaculture. Springer, Berlin Heidelberg New York, pp.181–206

types from intensive finfish aquaculture culture are generally confined to the area beneath the structures[21]. **Figure 5** shows the QI habitats that the proposed aquaculture site overlaps.

Due to this spatial overlap, QIs Shallow Inlets and Bays (1160) and Reefs (1170) are carried forward to Stage 2.

2.3.1.1.5 Submerged or Partially Submerged Sea caves [8330]

As seen in **Figure 6**, the QI Submerged or Partially Submerged Sea caves (8330) has no direct spatial overlap with (existing and proposed) aquaculture activities. The submerged sea cave feature nearest to the proposed site T06/202 is approximately 4.5 km. The conservation objectives for Submerged or Partially Submerged Sea caves is to maintain favourable conservation condition by maintaining distribution of current sea caves and not allow for anthropogenic activities to adversely affect the ecology of the sea caves. The proposed activities will not affect the distribution of sea caves within the SAC. According to the worst case scenario water-quality modelling for this site, the waste from the farm will not reach the boundary of any of the sea caves. On this basis, the proposed finfish aquaculture activities will not significantly impact on water quality at the proposed sites and therefore, impact on community structure within the cave systems.

The qualifying interest Submerged or Partially Submerged Sea caves [8830] therefore, is screened out from further consideration in this report.

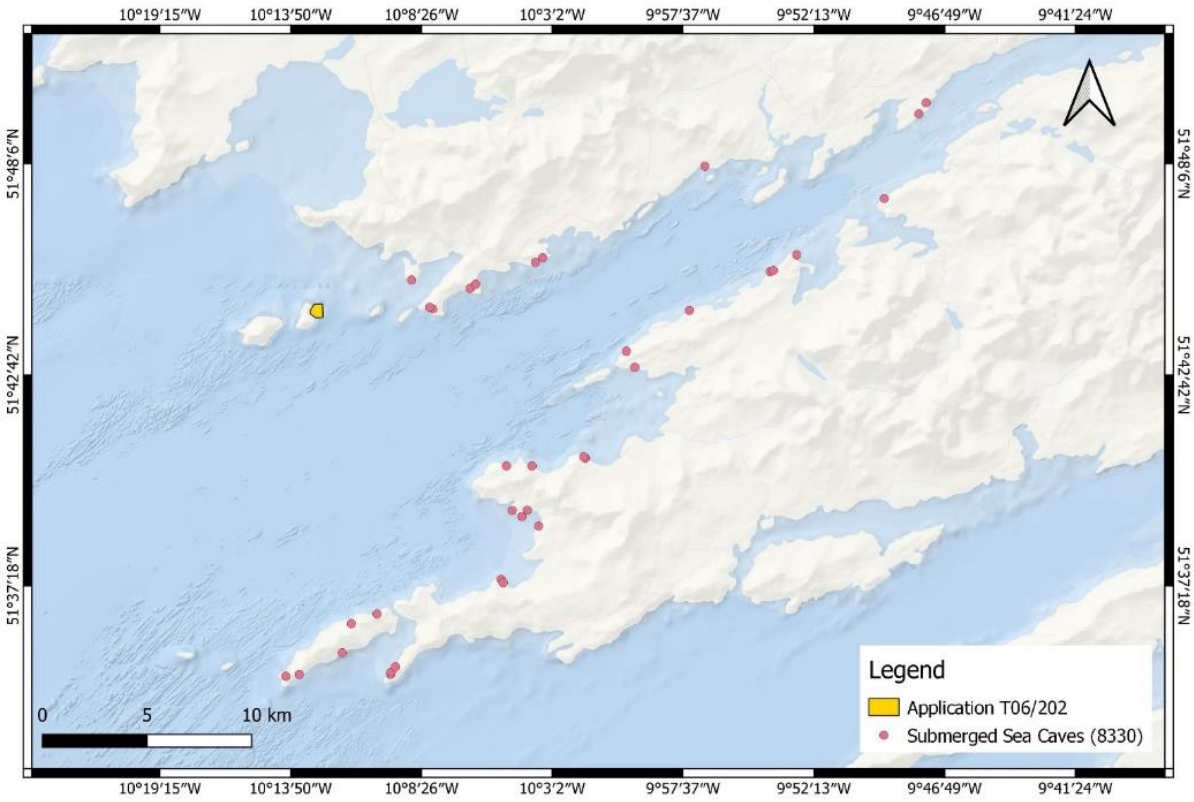


Figure 6 Map of the QI Submerged Sea Caves (8330) Relative to Proposed Aquaculture Sites

[21] Law and Hill. 2019. Spatial and temporal variation in cumulative mass eroded and organic matter percentage in surface sediments near areas of active salmon aquaculture. Aquaculture Environment Interactions. Vol. 11: 305-320p.

2.3.1.1.6 Otter (*Lutra lutra*) [1355]

The proposed activities occur within the Kenmare River SAC and therefore within potential otter habitat, commuting areas and foraging grounds. Given this spatial overlap and the reasonable potential for otter to interact with the proposed activities, a significant effect on otter cannot be dismissed and therefore, **Otter is carried forward to Stage 2.**

2.3.1.1.7 Harbour Seal (*Phoca vitulina*) [1365]

Kenmare River SAC is designated for the Harbour Seal. Harbour Seal surveys[22,23,24] show the Kenmare River has maintained its importance on a regional and national scale in terms of Harbour Seal numbers, as indicated in earlier surveys[25,26]. More recent counts are 419 seals[27]. Given this spatial overlap and the reasonable potential for Harbour Seal to interact with the proposed activities, a significant effect on Harbour Seal cannot be dismissed and therefore, **Harbour Seal is carried forward to Stage 2.**

2.3.1.2 *Screening of QIs of Adjacent Natura 2000 Sites*

Guidance has indicated that a screening exercise might consider the likely interactions between the QIs of Natura 2000 sites within a standard distance of 15 km from the proposed activity[28]. While this guide value of 15 km can inform for habitats and also, for species with defined ranges, they may not apply to migratory species (e.g. some fishes or mammals) or those with large foraging ranges (e.g. birds and mammals). Such species may interact with the proposed activity as a result of the structures impacting their migratory route or impacting on their foraging behaviour, among other effects. It is important such species are identified and the potential interactions should be considered on a case-by-case basis.

In this instance, the QI *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] from the Glanmore Bog SAC, in addition to the QI *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] and the QI *Salmo salar* (Salmon) [1106] from the Blackwater River SAC and the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC, are considered as species with potential interactions with the proposed site. These sites have rivers that flow into the Kenmare Bay SAC, or these is a potential S-P-R interaction with these species, therefore Both *Margaritifera margaritifera* and *Salmo salar* are considered in the screening.

The screening of the QIs of adjacent Natura 2000 SAC sites is outlined in Table 2-4.

[22] NPWS 2010 Report on a pilot monitoring study carried out in southern & western Ireland, 2009 Link
[23] NPWS 2011 Harbour Seal Pilot Monitoring Project Link
[24] NPWS 2012 Harbour Seal Pilot Monitoring Project Link
[25] Cronin, M., Duck, C., Ó Cadhla, O., Nairn, R., Strong, D. & O' Keeffe, C. (2004). Harbour seal population assessment in the Republic of Ireland: August 2003. Irish Wildlife Manuals, No. 11. NPWS Link
[26] Heardman, C., O'Donnell, D., & McMahon, D. (2006). The Status of the Harbour Seal *Phoca vitulina* L. in Inner Bantry Bay, Co Cork and Inner Kenmare River, Co Kerry: 1964-2004. The Irish Naturalists' Journal, 28(5), 181–191 Link
[27] Morris CD & CD Duck. 2019 Aerial thermal-imaging survey of seals in Ireland, 2017-2018. Irish Wildlife Manuals, No. 111 NPWS Link
[28] NPWS. 2009 Threat Response Plan: Otter (2009-2011). National Parks & Wildlife Service, Department of the Environment, Heritage & Local Government, Dublin.

Table 2-4 SAC Natura sites adjacent (within 15km) to the area of the proposed activity, with their QI, CF, objectives, and screening outcomes.

Natura site	QIs and Conservation Features	Objective	Screening Outcome
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (000365)	Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110]	To restore favourable conservation condition of oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*)	The Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC is located approximately 5.44 km from the closest boundary of the proposed aquaculture operation in Kenmare River SAC. Given the predominantly terrestrial and freshwater nature of the QIs (identified opposite) of this SAC and that there is no spatial overlap or likely interactions identified between aquaculture activities the SAC, it is considered that there is not clear "source-path-receptor" interactions with these Annex I Habitats or Annex II Species and therefore, **no likely significant effects are posed** by the intensive aquaculture on these QIs of this Natura 2000 site.
	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130]	To restore favourable conservation condition of oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea*	
	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]	To maintain favourable conservation condition of water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]	
	Northern Atlantic wet heaths with *Erica tetralix* [4010]	To restore favourable conservation condition of Northern Atlantic wet heaths with *Erica tetralix*	
	European dry heaths [4030]	To restore favourable conservation condition of European dry heaths	
	Alpine and Boreal heaths [4060]	To restore favourable conservation condition of Alpine and Boreal heaths	
	Juniperus communis formations on heaths or calcareous grasslands [5130]	To maintain favourable conservation condition of *Juniperus communis* formations on heaths or calcareous grasslands	

Natura site	QIs and Conservation Features	Objective	Screening Outcome
	Calaminarian grasslands of the *Violetalia calaminariae* [6130]	To maintain favourable conservation condition of Calaminarian grasslands of the *Violetalia calaminariae*	
	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]	To restore favourable conservation condition of *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)	
	Blanket bogs (* if active bog) [7130]	To restore favourable conservation condition of Blanket bogs (* if active bog)	
	Depressions on peat substrates of the *Rhynchosporion* [7150]	To restore favourable conservation condition of Depressions on peat substrates of the *Rhynchosporion*	
	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]	To restore favourable conservation condition of Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	
	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) [91E0]	To restore favourable conservation condition of Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)	
	Taxus baccata woods of the British Isles [91J0]	To restore favourable conservation condition of *Taxus* baccata woods of the British Isles	
	Geomalacus maculosus (Kerry Slug) [1024]	To maintain favourable conservation condition of *Geomalacus maculosus* (Kerry Slug)	

Natura site	QIs and Conservation Features	Objective	Screening Outcome
	Euphydryas aurinia (Marsh Fritillary) [1065]	To restore favourable conservation condition of *Euphydryas aurinia* (Marsh Fritillary)	
	Trichomanes speciosum (Killarney Fern) [1421]	To maintain favourable conservation condition of *Trichomanes speciosum* (Killarney Fern)	
	Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]	To maintain favourable conservation condition of *Rhinolophus hipposideros* (Lesser Horseshoe Bat)	
	Najas flexilis (Slender Naiad) [1833]	To maintain favourable conservation condition of *Najas flexilis* (Slender Naiad)	
	Alosa fallax killarnensis (Killarney Shad) [5046]	To restore favourable conservation condition of *Alosa fallax killarnensis* (Killarney Shad)	Killarney Shad are resident species of Lough Leane, a land-locked lake[29] in the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC. Due to the lack of spatial connectivity between the habitat of the Shad and the Kenmare River SAC**,** the Killarney Shad can be screened out from further consideration in this document. **Likely significant effects on these QIs can be discounted.**
	Petromyzon marinus (Sea Lamprey) [1095]	To maintain favourable conservation condition of *Petromyzon marinus* (Sea Lamprey	The conservation objectives for these three QIs in the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC are to maintain the favourable conservation condition through: • Distribution • Population structure of juveniles • Juvenile density in fine sediment • Extent and distribution of spawning habitat • Availability of juvenile habitat
	Lampetra planeri (Brook Lamprey) [1096]	To maintain favourable conservation condition of *Lampetra planeri* (Brook Lamprey)	
	Lampetra fluviatilis (River Lamprey) [1099])	To maintain favourable conservation condition of *Lampetra fluviatilis* (River Lamprey)	

[29] https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000365.pdf

Natura site	QIs and Conservation Features	Objective	Screening Outcome
			The majority of these attributes are focused on the conservation of the juvenile life stage of the lampreys which occurs in the freshwater rivers of the SAC. The Brook Lamprey is the smallest of the native Irish lampreys[30], a non-parasitic lamprey that spends its entire life cycle in freshwater. The River Lamprey similarly carries out most of its life cycle in freshwater. Sea lamprey migrate from the freshwater to marine waters to continue to grow feeding on marine fish. With regards to conserving distribution of the lamprey, migration can be blocked or limited by artificial barriers in the waterways which would limit access to spawning grounds (upstream in the Laune catchment). The proposed aquaculture site is completely marine and 5.44 km from the nearest boundary of the SAC and would not physically impede lamprey migration. Due to the lack of spatial connectivity between the habitat of the juvenile life stage of the lamprey and the Kenmare River SAC and the lack of barriers that would impede on the distribution of lamprey during migratory periods, Sea Lamprey, Brook Lamprey and River Lamprey can be screened out from further consideration in this document. **Likely significant effects on these QIs can be discounted.**
	Salmo salar (Salmon) [1106]	To maintain favourable conservation condition of *Salmo salar* (Salmon)	The conservation objectives for this feature in the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC is to maintain the favourable conservation condition through: • Distribution: extent of anadromy • adult spawning fish • Salmon fry abundance • Out-migrating smolt abundance • Number and distribution of redds

[30] Kelly and King. 2000. Biology and environment: Proceedings of the Royal Irish Academy. Vol 101B 3. 165-185.

Natura site	QIs and Conservation Features	Objective	Screening Outcome
			• Water quality Due to potential interaction with migrating Annex II Species with proposed aquaculture activities, Salmon is **carried forward to Stage 2** .
	Lutra lutra (Otter) [1355]	To maintain favourable conservation condition of *Lutra lutra* (Otter)	The conservation objectives for this feature in the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC is to maintain the favourable conservation condition through: • Distribution (assume terrestrial, marine and freshwater) • Extent of terrestrial habitat • Extent of marine habitat • Extent of freshwater (river) habitat • Extent of freshwater (lake/lagoon) habitat • Couching sites and holts • Fish Biomass available • Barriers to connectivity Otters tend to forage within 80 m of the shoreline and will commute across stretches of open water up to 500 m. As the boundary of the SAC is greater than 5 km from the aquaculture site, the lack of spatial overlap or likely interactions between the Annex II species and the aquaculture activities, otter is excluded from further analysis. **Otter is a QI for the Kenmare River SAC and is carried forward to Stage 2 on that basis.**
	Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]	To maintain favourable conservation condition of *Margaritifera margaritifera* (Freshwater Pearl Mussel)	The conservation objectives of this feature in the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC: • Distribution • Population size • Population structure: recruitment

Natura site	QIs and Conservation Features	Objective	Screening Outcome
			• Population structure: adult mortality • Suitable habitat: extent • Suitable habitat: condition • Water quality: macroinvertebrate and phytobenthos (diatoms) • Substratum quality: filamentous algae (macroalgae); macrophytes (rooted higher plants) • Substratum quality: sediment • Substratum quality: oxygen availability • Substratum quality: oxygen availability • Hydrological regime: flow variability • Host fish • Fringing habitat: area and condition Due to potential interaction with migrating host fish used by this Annex II Species with proposed aquaculture activities, Freshwater Pearl Mussel is **carried forward to Stage 2**
Ballinskelligs Bay and Inny Estuary SAC (000335)	Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]	To maintain favourable conservation condition of Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	The Ballinskelligs Bay and Inny Estuary SAC is 5.52 km from the proposed aquaculture site. Given the predominantly terrestrial and freshwater nature of the QIs in this SAC and that there is no spatial overlap or likely interactions identified between aquaculture activities in this SAC, it is considered that there is not clear "source-path-receptor" interactions and therefore **no significant effects posed** by the salmon aquaculture on the QIs of this Natura 2000 site. **Likely significant effects on these QIs can be discounted.**
	Mediterranean salt meadows (*Juncetalia maritimi*) [1410]	To maintain favourable conservation condition of Mediterranean salt meadows (*Juncetalia maritimi*)	
	Petalophyllum ralfsii (*Petalwort*) [1395]	To restore favourable conservation condition of Petalophyllum ralfsii (*Petalwort*)	

Natura site	QIs and Conservation Features	Objective	Screening Outcome
Glanmore Bog SAC (001879)*	*Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029]	To restore favourable conservation condition of *Margaritifera margaritifera* (Freshwater Pearl Mussel)	The conservation objectives (see above) of this feature in the Glanmore Bog SAC include consideration of likely effects on host fish (e.g. migrating salmon). Due to potential interaction with migrating host fish used by this Annex II Species with proposed aquaculture activities, **Freshwater Pearl Mussel is carried forward to Stage 2.**
Blackwater River SAC (002173)*	*Salmo salar* (Salmon) [1106]	To Restore favourable conservation condition of *Salmo salar* (Salmon)	The conservation objectives for this feature (see above) in the Blackwater River SAC is to restore the favourable conservation condition and included out-migrating smolt abundance. Due to potential interaction with this migrating Annex II Species with proposed aquaculture activities, **Salmon is carried forward to Stage 2**.
	Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]	To restore favourable conservation condition of *Margaritifera margaritifera* (Freshwater Pearl Mussel)	The conservation objectives of this feature (see above) in the Blackwater River SAC include consideration of likely effects on host fish (e.g. migrating salmon). Due to potential interaction with migrating host fish used by this Annex II Species with proposed aquaculture activities, **Freshwater Pearl Mussel is carried forward to Stage 2.**

*Only the QIs *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] and *Salmo salar* (Salmon) [1106] for these SACs are considered as they are species with a potential S-P-R with the proposed activity. The other QIs are outside the zone of influence of the proposed site.

Screening of QIs in the Relevant SPAs

A Technical Review of Screening for Appropriate Assessment for SPA was carried out by WS Atkins Ireland Limited. The full report is attached as an Appendix in this report. The outcomes for this screening process for SPAs are presented in Table 2-5.

Table 2-5 Screening outcomes for QI in relevant SPAs (by WS Atkins Ireland Ltd.)

Qualifying Species	Closest SPA	Screening Outcome	Comments
Arctic Tern (*Sterna paradisaea*)	0km	In	Previously bred on Deenish Island but have moved to Two Headed Island (NPWS, 2019) Pens overlap with potential feeding habitat.
Bar-tailed Godwit (*Limosa lapponica*)	34.7km	Out	There is no overlap with feeding or wintering habitat.
Chough (*Pyrrhocorax pyrrhocorax*)	3.3km	Out	No records of Chough on Deenish or Scarriff from NPWS (2019). Screened out pending results from 2021 Chough survey (release expected early 2023)
Common Scoter (*Melanitta nigra*)	34.7km	Out	Small numbers (100's) winter in Ballinskelligs Bay[32], main population is Dingle Bay. Not known to move to waters off Deenish.
Cormorant (*Phalacrocorax carbo*)	34.7km	In	Overlap with potential feeding habitat. NPWS (2019) no records of breeding birds on Deenish Island, closest breeding record on Eyeries Island (16.3km). The maximum foraging distance listed by the applicant was 35km, however, the species was screened out despite Castlemaine Harbour being within that distance.
Fulmar (*Fulmarus glacialis*)	0km	In	Breeding occurs on Deenish Island, with a larger breeding population on Scarriff Island. Pens overlap with potential feeding habitat.
Gannet (*Morus bassanus*)	16.4km	In	Breed on Skellig SPA and The Bull and The Cow Rocks SPA. Cages overlap with potential feeding habitat.
Greenland White-fronted Goose (*Anser albifrons flavirostris*)	43.4km	Out	There is no overlap with feeding or wintering habitat. Offshore roosting is a feature of Greylag geese (Lambay) and Barnacle Geese (e.g. Inishkea Islands). However, there is no evidence of birds roosting on Deenish.
Greenshank (*Tringa nebularia*)	34.7km	Out	There is no overlap with feeding or wintering habitat. Greenshank not known to breed.
Guillemot (*Uria aalge*)	3.3km	In	Overlap with breeding habitat, no records of breeding on Deenish or Scarriff Islands.
Herring Gull (*Larus argentatus*)	41.2km	In	NPWS (2019) confirmed breeding on Deenish. Overlap with potential feeding habitat.
Kittiwake (*Rissa tridactyla*)	3.3km	In	Overlap with potential feeding habitat, close proximity to nearest SPA.

[32] www.irishbirding.com

Lesser Black-backed Gull (*Larus fuscus*)	0km	In	Breed on Deenish Island (NPWS, 2019) and pens overlap with potential feeding habitat.
Light-bellied Brent Goose (*Branta bernicla hrota*)	34.7km	Out	Not known to occur in this area. There is no overlap with feeding or wintering habitat
Mallard (*Anas platyrhynchos*)	34.7km	Out	While Mallard does occur in Kenmare Bay, there is no overlap with feeding, wintering or breeding habitat with the sea cages at Deenish.
Manx Shearwater (*Puffinus puffinus*)	0km	In	Overlap with breeding and feeding habitat. Risk of lighting associated with sea cages also to be considered. Large breeding population records on Deenish from the Seabird 2000 survey, however, no records were provided in the NPWS, 2019 data.
Merlin (*Falco columbarius*)	46.5km	Out	Merlin breeding on upland sites do move to coastal areas to forage. These are also supplemented by winter birds many of Icelandic origin. However, the offshore cages do not overlap with feeding or breeding habitat.
Oystercatcher (*Haematopus ostralegus*)	34.7km	Out	Where Oystercatcher is listed as a QI for a SPA, this is for wintering population, It is noted in the Site synopsis for Deenish Island and Scariff Island SPA that they breed on Scariff Island. No records of Oystercatcher breeding on Deenish Island were available. Rock shores of Scariff Island and Deenish Island provide suitable foraging habitat for Oystercatcher.
Peregrine (*Falco peregrinus*)	3.3k	In	No Peregrine nests were recorded on Deenish Island during the 2017 Peregrine survey. NBDC has a probable record of breeding in the 10km square that the site sits in. Potential to impact on prey availability if site effects prey abundance should be considered. (Prey includes coastal species; shorebirds and seabirds). One peregrine was seen on Deenish Island during the 2019 survey of seabirds (NPWS, 2019).
Pintail (*Anas acuta*)	34.7km	Out	There is no overlap with feeding or wintering habitat.
Puffin (*Fratercula arctica*)	16.1km	In	Overlap with feeding habitat, not known to breed on Deenish. However, the Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991 (NBDC) (V45) did note under breeding evidence that bird was Seen. NPWS (2019) requested data had no records of Puffins on Deenish.
Razorbill (*Alca torda*)	16.1km	In	Overlap with feeding habitat, not known to breed on Deenish. However, the Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991 (NBDC) (V45) did note under breeding evidence that bird was Seen. NPWS (2019) requested data had no records of Razorbill on Deenish.

Redshank (*Tringa totanus*)	34.7km	Out	There is no overlap with feeding or wintering habitat. No evidence of local breeding.
Red-throated Diver (*Gavia stellata*)	34.7km	In	Overlap with winter feeding habitat. Does not breed close to the study area; restricted to breeding in Co. Donegal (Crowe *et al*. 2021). More information needed on foraging ranges.
Ringed Plover (*Charadrius hiaticula*)	34.7km	Out	No overlap with winter feeding habitat. Not known to breed on Deenish. NPWS (2019) requested data had no records of Ringed Plover on Deenish.
Sanderling (*Calidris alba*)	34.7km	Out	No overlap with feeding or wintering habitat
Scaup (*Aythya marila*)	34.7km	Out	No overlap with feeding or wintering habitat
Shag (*Phalacrocorax aristotelis*)	41.2km	In	Overlaps with feeding habitat and potential breeding habitat on Deenish. Shag recorded breeding on Deenish Island (NPWS, 2019)
Storm Petrel (*Hydrobates pelagicus*)	0km	In	Overlap with feeding and breeding occurs on Deenish. Internationally important Storm Petrel Population.
Turnstone (*Arenaria interpres*)	34.7km	Out	No overlap with breeding habitat. Likely to occur on rocky shores of the Island, however; species is tolerant of human activity.
Wigeon (*Anas penelope*)	(34.7km)	Out	There is no overlap with feeding or wintering habitat; no evidence of breeding.
Common Tern (*Sterna hirundo*)			The nearest SPA which includes Common Tern as a breeding species is Magharee Islands SPA (004125). However, Balmer *et al*. 2013 record it breeding extensively around Kenmare Bay and islands. The assessment should therefore consider both breeding and post-breeding autumnal aggregations of Common Tern [33] for completeness.
Great Black-backed Gull (*Larus marinus*)			No SPAs currently appear to be designated for Great Black-backed Gull. However, as it is a key part of the group of gull species frequenting Kenmare Bay and environs. It should therefore also be considered further in the assessment of potential impacts.
Black Guillemot (*Cepphus grille*)			No SPAs currently appear to be designated for Black Guillemot. Balmer *et al*. 2013 record it breeding extensively around Kenmare Bay and islands. It should therefore also be considered further in the assessment of potential impacts.

[33] Burke, B., Fitzgerald, N., Boland, H., Murray, T., Gittings, T. and Tierney, T.D. (2020). Results from the first three years of monitoring post-breeding tern aggregations in Ireland. *Irish Birds* 42:35-44.

Screening of Potential Effects of Introduction of Non-native Species

The proposed finish aquaculture site (T06/202) will be farming Atlantic salmon, which is native to Ireland. There is the potential to utilise cleaner fish in the control of sea-lice. The species that may be used include 5 wrasse species (Ballan *Labrus bergylta*, Goldsinny *Ctenolabrus rupestrus*, Corkwing *Symphodus melops*, Rockcook *Centrolabrus exoletus*, and Cuckoo *Labrus mixtus*) and lumpfish (*Cyclopterus lumpus*). These are all native species and the cleaner fish will normally be fished locally, but there is the option to use hatchery reared fish, which may be from non-local sources.

Consideration of in-combination effects on Natura 2000 site Qualifying Interests

It is important to consider, for those QIs that may screen out during the initial AA screening exercise, if the pressures deriving from the proposed activities acts in-combination with other activities such that additive or synergistic effects are realised on the QIs. It is possible that such combined effect may cause the QI, therefore, to screen in and be considered further in the AA process. It should be noted that, interactions are additive when their combined effect is the sum of each independently, synergistic when the combined effect is greater than the sum of each independently, and antagonistic when the combined effect is less than the sum of each independently.

To this end, existing and proposed licensing activities in the vicinity of the proposed intensive aquaculture activities have been reviewed.

2.3.1.3 *Other Aquaculture activities*

There are 6 other licences finfish production sites in the Kenmare River SAC, and 41 licenced shellfish or seaweed sites – these are listed in Table 2-6.

Table 2-6 Licenced aquaculture and applications for aquaculture activities in Kenmare River SAC.

Site No.	Status	Activity/Species	Total Area (ha.)
T06-202	**L /A**	**Finfish**	**33.48**
T05-515A	A	Finfish	31.89
T05-233	L	Finfish	25.94
T06-064-7	L /A	Finfish	29.01
T06-064A	L /A	Finfish	4.1
T06-064B	L /A	Finfish	2.5
T05-620A	A	Shellfish	1.52
T05-041A	L	Shellfish	8.05
T05-044	L	Shellfish	31.72
T05-129	L	Shellfish	5.99
T05-157	L	Shellfish	5.47
T05-160A	L	Shellfish	5.99
T05-160B	L	Shellfish	3.06
T05-225	L	Shellfish	5.48
T05-258	L	Shellfish	13.95
T05-317A	L	Shellfish	4.02
T05-317B	L	Shellfish	3.04
T05-340-1	L	Shellfish	2.60
T05-348A	L	Shellfish	7.53

T05-348B	L	Shellfish	2.81
T05-369	L	Shellfish	4.79
T05-399	L	Shellfish	1.34
T06-024	L	Shellfish	9.47
T06-033A	L	Shellfish	5.29
T06-035A	L	Shellfish	2.63
T06-039A	L	Shellfish	3.99
T06-039C	L	Shellfish	3.64
T06-106	L	Shellfish	5.5
T06-114	L	Shellfish	4.0
T06-131	L	Shellfish	4.01
T06-149B	L	Shellfish	8.49
T06-154	L	Shellfish	4.38
T06-179B	L	Shellfish	2.37
T06-190	L	Shellfish	3.87
T06-201	L / A	Shellfish	1.98
T06-280-2	L	Shellfish	0.89
T06-280A	L	Shellfish	1.37
T06-280B	L	Shellfish	1.37
T06-295A	L	Shellfish	1.38
T06-327A	L	Shellfish	1.18
T06-332A	L	Shellfish	7.84
T06-338A	L	Shellfish	3.75
T06-356A	L	Shellfish	14.77
T06-388A	L	Shellfish	2.25
T06-390A	L	Shellfish	2.19
T05-627A	A	Shellfish, Seaweeds	14.47
T05-523A	L	Shellfish, Seaweeds	16.31

The nearest extensive aquaculture site is > 11 km form the proposed site. The main cultured species are mussels, with some oysters and proposed seaweed sites. There are no clear S-P-R interactions between the extensive aquaculture sites and the proposed sites, therefore there is not likely to be any in-combination effects with these activities.

The nearest finfish site in > 13km from the site, on the other side of the Kenmare Bay with 4 other licenced or applications further in the Bay, within the SAC. Potential in-combination risk factors include farm discharge (feed waste, fish excretion, and release of chemoterapeutants) and biological dispersion (parasites such as sea lice, diseases). The modelling detailed in the Environmental impact Assessment accompanying the application indicates that there is a separation between the north and south of the Bay by the deep Kenmare Bay channel, and that there is limited northerly or southerly flows (i.e. limited hydraulic connection between the sites). The report indicated that the spatial footprints of discharges from the sites do not overlap. Given the distance and lack of hydrological connectivity, the potential for direct in-combination effects between the proposed site and current and planned finfish sites is minimal. The effects from the release of parasites, such as sea-lice, from the site, also has the potential for cumulative effect. This will be considered further in the Stage 2

assessment, in the context of the QIs *Salmo salar* (Salmon) [1106] and *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029].

2.3.1.4 *Other Plans or Projects*

Activities reviewed are accessed at the following locations:

- DHLGH Foreshore Licencing (https://www.gov.ie/en/foreshore-notices - accessed 15/09/2023)
    - FS005965 Kerry County Council – Bunavalla involves a Foreshore lease application for piled reinforced concrete extension to the existing pier including wave wall, deck furniture, stairs and ladders at Bunavalla, Derrynane Harbour. This project is small with minimal and localised effects, that are not likely to have any in-combination effects with this project.
- Kerry County Council planning (Link Map Viewer - accessed 15/09/2023)
- EPA pressures maps (www. https://gis.epa.ie/EPAMaps/Water - accessed 15/09/2023)

The review of these sources has identified no existing activities on the foreshore or adjacent to the foreshore that may interact with the proposed shellfish culture activities resulting in an additive or, more importantly, a synergistic cumulative effects, such that those QIs already screened out may now be included.

The result of this search has meant that screening conclusions identified above (and summarised below) are considered valid and the process can progress to the full AA stage.

3 NIS Review for T06/202

It is the responsibility of the proponent of the plan or project to have the NIS prepared for submission to the Competent Authority, to provide them with sufficient detail on the project to allow them to undertake a screening for Appropriate Assessment. This information supplied must be of a level sufficient to allow the competent authority to decide on whether or not the plan or project is likely to have significant effects on the Natura 2000 site, either alone or in-combination with other plans or projects. Assessments should be undertaken based on the best scientific evidence and methods. Having satisfied itself that the NIS is complete and objective, the Competent Authority carries out the AA based on the statement and any other necessary information.

The Marine Institute has been requested to review the *Screening for Appropriate Assessment and Natura Impact Statement for Renewal of Marine Finfish Aquaculture Licence at Deenish Island, Co. Kerry Licence Site Ref: T6/202* document relating to application to renew and review an intensive aquaculture licence at site T06/202 at Deenish, Kenmare Bay, Co. Kerry, as to whether it contains the necessary information to progress to the next stage of the licensing process - enabling the carrying out of an Appropriate Assessment, and ultimately the drafting of a Conclusion Statement. This section gives a review of the applicants AA screening and NIS. The following elements are considered:

- *Description of plan or project*
- *Identification of relevant Natura 2000 sites*
- *Assessment of likely effects*
- *Screening Conclusions (Assessment of the Phase 1 Screening for AA determination)*

[This section is compiled by the Marine Institute, with review elements from WS Atkins Ireland Limited].

3.1 Review of the Applicants AA Screening and NIS

The project proponent must provide sufficient detail on the project to a level sufficient to allow the competent authority to decide on whether or not the plan or project is likely to have significant effects on the Natura 2000 site, either alone or in-combination with other plans or projects. The applicant submitted, with their application, a number of AA reports for consideration by the licencing body. The reports submitted are:

- Screening for Appropriate Assessment and Natura Impact Statement Volume 1 – Main Report Renewal of Marine Finfish Aquaculture Licence at Deenish Island, Co. Kerry Licence Site Ref:T6/202
- Screening for Appropriate Assessment and Natura Impact Statement Volume 2 – Appendices Renewal of Marine Finfish Aquaculture Licence at Deenish Island, Co. Kerry Licence Site Ref: T6/202

This Section assesses the completeness of the information included in these documents.

Review of Stage 1 - Screening for Appropriate Assessment

AA screening is the first test to establish whether, in relation to a particular plan or project, Appropriate Assessment is required. The purpose is to determine, based on a preliminary assessment and objective criteria, whether a plan or project, alone and in combination with other plans or

projects, could have significant effects on a Natura 2000 site in view of the site's Conservation Objectives (CO).

3.1.1.1 *Description of plan or project*

A description of the plan or project, including its nature, size and location, and possible or likely effects, and draft policies, objectives, associated strategies in the case of plans, should be provided.

A comprehensive description of the project, its nature and practices are supplied providing:

- Detail of the location of the site, including graphics displaying the current site and proposed new site.
- Description of the hydrography, bathymetry, currents and tides.
- Detailed description, and graphics, of the infrastructure to be used (pens, moorings, nets).
- Description of the access routes and supporting shore-based facilities and vessels.
- Detail of the production plans and cycles.
- Detail of the husbandry and management practices and methods (feed and feeding, stock delivery, grading, harvesting and processing).
- Detail, tables and graphics on site discharges.
- Details on process and management regarding waste, mortalities, health management, diseases, parasite monitoring and control, predator control, and accidents and emergencies (including escapes).
- Detail on decommissioning.

3.1.1.2 *Identification of relevant Natura 2000 sites*

A comprehensive description of receiving environment and the physical and biological characteristics (or aspects) of the marine environment at Deenish Island and surrounds is provided. This includes:

- Detail on the physical and biological characteristics (or aspects) of the marine environment at Deenish Island and surrounds.
- A condensed SAC site synopsis, based on NPWS documents, identifying that the site is located within the Kenmare River SAC (002158), detailing the qualifying interests potentially affected.
- Lists of the marine mammals recorded in Bantry Bay and nearby coastal waters (source Biodiversity Ireland) is provided. Detail on the populations and foraging behaviour for each is provided.
- The foraging range of the QI common seal (or harbour seal) (*Phoca vitulina*) is identified as well as Natura sites potentially affected, based on that range.
- Populations of the QI Grey seal (*Halichoerus grypus*) population are identified in relevant SACs, and SACs within the identified foraging range grey seal are listed.
- A number or Cetacean species are considered based on them being recorded in the area (sightings or strandings).
- Otter (*Lutra lutra*) is considered being a QI for Kenmare River SAC (002158).
- Atlantic salmon (*Salmo salar*) is considered for the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (000365).

- The screening considers SPAs designated for Qualifying Feature species with maximum foraging ranges overlapping the project area. The Deenish Island and Scariff Island SPA (004175), and other SPAs located close to the proposed site [Beara Peninsula SPA (004155); The Bull and the Cow Rocks SPA (004066); Iveragh Peninsula (004154); The Skelligs (004007); and Puffin Island SPA (004003)] are described in brief.
- Natura 2000 sites within 15 km of the proposed project (as measured using the shortest linear distance) were considered in the screening for AA. These were identified as:
    - SACs:
        - Kenmare River SAC (02158)
        - Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (000365)
        - Ballinskelligs Bay and Inny Estuary SAC (000353)
    - SPAs
        - Deenish Island and Scariff Island SPA (004175)
        - Iveragh Peninsula SPA (004154)
        - Beara Peninsula SPA (004155)

3.1.1.3 *Assessment of likely effects*

The screening must establish if plan is likely to have an effect and determine whether there is a risk that the effects could be significant, using a precautionary approach where uncertain. Any element that has the potential to affect the Conservation Objectives (CO) of a site, including structure and function, should be considered likely significant.

- A brief description of the above SACs and SPAs within 15 km of the project is provided.
- Screenings of potential interactions for QIs within the greater zone of influence, i.e., species whose foraging range will potentially overlap the proposed project, are also provided.
- The methodologies to establish any element that has the potential to affect the CO of a site are described.
- The Qualifying Features of the sites and the screening conclusions are elaborated and summarised in a Table.

3.1.1.4 *Screening Conclusions*

The findings and conclusions of the Screening process must be documented (with supporting evidence and objective criteria) - especially if the QI is screened out.

- In the Kenmare River SAC (002158) the number of QIs are screened out based on distance from the proposed site and no pathway for interaction:
- In the Kenmare River SAC (002158) the following QIs are screened in:
    - Large shallow inlets and bays [1160]
    - Reefs [1170]
    - Common (Harbour) Seal (*Phoca vitulina*) (1365)
    - Otter (*Lutra lutra*) (1355)

- In the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (000365) only the following QIs are screened in:
    - *Salmo salar* (Salmon) (1106)
    - Otter (*Lutra lutra*) [1355]
    - *Margaritifera margaritifera* (Freshwater pearl mussel).
- Based on distance and no pathway for interaction (S-P-R), all the QIs for the Ballinskelligs Bay and Inny Estuary SAC (000335) were screened out.
- In the Deenish Island and Scariff Island SPA (004175) all QIs are screened in:
    - Fulmar (*Fulmarus glacialis*) [A009]
    - Manx Shearwater (*Puffinus puffinus*) [A013]
    - Storm Petrel (*Hydrobates pelagicus*) [A014]
    - Lesser Black-backed Gull (*Larus fuscus*) [A183]
    - Arctic Tern (*Sterna paradisaea*) [A194]
- In the Deenish Island and Scariff Island SPA (004175) the following notable seabird species are considered:
    - Black Guillemot (*Cepphus grylle*)
    - Great Black-backed Gull (*Larus marinus*)
    - Shag (*Phalacrocorax aristotelis*)
    - Herring Gull (*Larus argentatus*)
- In the Iveragh Peninsula SPA (004154) the following QI species are screened in:
    - Fulmar (*Fulmarus glacialis*) [A009]
    - Kittiwake (*Rissa tridactyla*) [A188]
    - Guillemot (*Uria aalge*) [A199]
- In the Iveragh Peninsula SPA (004154) the following QI species are screened out due to coastline or inland habitat preferences:
    - Chough (*Pyrrhocorax pyrrhocorax*) [A346].
    - Peregrine (*Falco peregrinus*) [A103]
- In the Beara Peninsula SPA (004155) the following QI species are screened in:
    - Fulmar (*Fulmarus glacialis*) [A009]
- In the Beara Peninsula SPA (004155) the following notable seabird species are screened in:
    - Shag (*Phalacrocorax aristotelis*),
    - Herring Gull (*Larus argentatus*),
    - Lesser Black-backed Gull (*Larus fuscus*),
    - Razorbill (*Alca torda*),
    - Black Guillemot (*Cepphus grylle*)

- In the Beara Peninsula SPA (004155) the following QI species are screened out due to coastline or inland habitat preferences:
    - Chough (*Pyrrhocorax pyrrhocorax*) [A346].
    - Peregrine (*Falco peregrinus*) [A103]
- The following Qualifying Features of SACs and SPAs greater than 15 km from the project are screened in based on potential disturbance and as likely significant effect could not be ruled out:
    - Harbour seal (*Phoca vitulina*)
    - Grey seal (*Halichoerus grypus*)
    - Harbour porpoise (*Phocoena phocoena*)
    - Common Bottlenose Dolphin (*Tursiops truncatus*)
    - Chough (*Pyrrhocorax pyrrhocorax*),
    - Common Tern (*Sterna hirundo*),
    - Gannet (*Morus bassanus*),
    - Peregrine (*Falco peregrinus*),
    - Puffin (*Fratercula arctica*),

Review of Stage 2 – Appropriate Assessment (AA) – Natura Impact Statement

The AA is a focused and detailed impact assessment of the implications of the plan or project, alone and in combination with other plans and projects, on the integrity of a Natura 2000 site in view of its COs.

3.1.1.5 *AA Information Required, Conservation Objectives, and Impact Prediction*

An AA report aims to provide information to the Competent Authority to carry out the AA to determine whether or not the proposed project would adversely affect the integrity of Natura sites as defined by COs and status of site, individually or in combination with other factors. The NIS must identify aspects of the plan that will affect the COs and provide adequate information to complete the AA. The predictions of impacts must be addressed, and objective and scientifically bounded conclusions drawn. In the applicants NIS:

- The Annex I Benthic Habitats *Large shallow inlets and bays [1160]* and *Reef [1170]* are considered. The conservation objectives, community types, their attributes, and targets are identified and outlined.
- Three-dimensional hydrodynamic simulation modelling was used to determine potential impacts. Overlap is considered, with graphics and tables provided.
- Annual Benthic Audits are utilised to determine impacts and consider the ability of the site to tolerate impacts.
- Aquaculture Stewardship Council Accreditation assessments are used to consider impacts, providing AMBI scores for monitoring stations at the site.
- The following Annex II Qualifying Features (marine and aquatic mammal) are considered, providing information regarding populations, their foraging ranges, and the SACs located within their potential foraging ranges from the project, on each of these species

    - Grey seal (*Halichoerus grypus*)
    - Harbour seal (*Phoca vitulina*)
    - Harbour porpoise (*Phocoena phocoena*)
    - Common Bottlenose Dolphin (*Tursiops truncatus*)
    - Otter (*Lutra lutra*)
- The attributes and targets for QI otter in Kenmare River SAC are presented in a Table. The effects and impacts assessed include disturbance and entanglement effects.
- Brief descriptions of the SACs designated for pinnipeds are provided. The effects and impacts of aquaculture disturbance and entanglement are assessed.
- Descriptions of the SACs and the CO designated for cetaceans are provided. The effects of disturbance, entanglement, noise and vibrations are considered.
- The following Habitats Directive Annex II Species – Migratory Fish Species and Aquatic Molluscs are considered:
    - Freshwater pearl mussel (*Margaritifera margaritifera*)
    - Atlantic salmon (*Salmo salar)*
- Of the potential impact mechanisms identified, pest and disease risk are identified as a main source of potential direct impacts to the diadromous salmon and potential indirect impacts to freshwater pearl mussel.
- The conservation objectives, attributes and targets for each species are presented.
- Sea lice biology and epidemiology is described and a 3-D hydrodynamic simulation modelling was undertaken to determine the transport and dispersion of sea lice (*L. salmonis*) larvae from the farm. Graphics and tables of model results are presented. Relevant research on sea lice induced mortality on wild salmon are presented.
- Information regarding the degradation of chemicals that may be used is provided.
- A literature review regarding escapees is provided and the potential for significant effect is recognised.
- Based on the species-specific foraging ranges and potential likely significant effects of the proposed project the following QIs from the relevant SPAs are considered:
    - Arctic Tern (*Sterna paradisaea*) [A194]
    - Common Tern (*Sterna hirundo*)
    - Fulmar (*Fulmarus glacialis*) [A009]
    - Gannet (Morus bassanus)
    - Guillemot (*Uria aalge*) [A199]
    - Herring Gull (Larus argentatus)
    - Kittiwake (*Rissa tridactyla*) [A188]
    - Lesser Black-backed Gull (*Larus fuscus*) [A183]
    - Manx Shearwater (*Puffinus puffinus*) [A013]
    - Puffin (Fratercula arctica)

    - Razorbill (Alca torda)
    - Storm Petrel (*Hydrobates pelagicus*) [A014]
- In the applicants AA report, the following species were screened in in the Stage 1 assessment but not deliberated on in the Stage 2 assessment.
    - Black Guillemot (*Cepphus grylle*)
    - Great Black-backed Gull (*Larus marinus*)
    - Shag (*Phalacrocorax aristotelis*)
    - Chough (*Pyrrhocorax pyrrhocorax*) [A346].
    - Peregrine (*Falco peregrinus*) [A103]
- The relevant SPAs for each species are identified and a summary of each SPA is provided.
- The potential impacts to bird species are identified and detailed, with comment on the risk, for:
    - Disturbance risk (from structures and activity)
    - Entanglement
    - Impacts on foraging and habitat suitability
- A comprehensive risk assessment to examine the potential impacts these species is carried out, using criteria for disturbance; population sensitivity; habitat suitability; habitat flexibility; to determine the overall level of impact and the significance of the impact, for each of the listed species.
- Projects that could have the potential to give rise to in-combination effects are salmon farms within Kenmare Bay – the 4 other sites are listed.
- Modelling is used to consider in-combination effects from other fish farms, regarding the discharge and dispersion of sea lice larvae.

3.1.1.6 *AA - Mitigation Measures*

Mitigation measures are measures to minimise, cancel, or avoid negative impacts, and can be an integral part of the specifications or an add-on. They must be planned and sufficient to mitigate the risk and be practical and achievable to avoid the risk.

- Mitigation measures to address risks from organic enrichment, disease and parasite risk, and escapee risk are specified.
- Monitoring plans are presented.

Application NIS versus MI Report

The Competent Authority must carry out the AA to determine whether or not the proposed project would adversely affect the integrity of Natura sites as defined by COs and status of site, individually or in combination with other factors. The MI have been asked (by the licencing authority DAFM) to review the Screening for AA and Natura Impact Statement provided for completeness, to ensure it contains the necessary information to progress to the next stage of the licensing process. To do this the MI conducts their own screening process and assessment, on behalf of the Competent Authority, i.e. DAFM.

The MI screening for SAC features agrees with the outcome of the applicant report, screening in and out the same QIs.

The MI engaged the services of an environmental consultant (with expertise in ornithology) (WS Atkins Ireland Limited) to carry out the AA screening process for SPAs in the zone of effect of the site. The two screening processes agreed substantially on the majority of the QIs considered. The following species were screened in by the applicant but not considered fully in the applicant NIS supplied. They are included and considered in the MI assessment (WS Atkins):

- Black Guillemot (*Cepphus grylle*)
- Great Black-backed Gull (*Larus marinus*)
- Shag (*Phalacrocorax aristotelis*)
- Chough (*Pyrrhocorax pyrrhocorax*) [A346].
- Peregrine (*Falco peregrinus*) [A103]

The MI screening (WS Atkins) brings in the following species which were not considered in the application NIS:

- Cormorant *(Phalacrocorax carbo*)
- Red-throated diver (*Gavia stellata*)

As part of the review process these points are highlighted as areas where detail may be lacking:

- The applicant report states that mesh size of the pen nets is smaller for smolts but does not provide the mesh sizes. The mesh size is important for assessing potential entanglement risk for diving birds. Mesh sizes required for cleaner fish are listed in the appendices, along with the mesh size for bird netting over the pens (6-inch square or smaller). The mesh size is given in the Aquaculture and Foreshore Licence application form as 32mm. As the NIS mentions that there are different mesh sizes depending on life stage/ size of salmon more detail is needed.
- It is stated that stocking density is low compared to international standards without providing a reference to confirm this.
- The treatment for Amoeba gill parasite is to bath the fish in freshwater. The source of freshwater or the quantities required has not been given. The abstraction of water from watercourse has the potential to impact on wetland bird species. This could potentially affect the zone of influence of the project and the screening of bird species for the purpose of the AA process.
- The screening assessment carried out in this review has screened in four bird species that were not brought forward to Stage 2 AA by the applicant. These include Cormorant, Peregrine, Red-throated Diver and Shag.

4 Conclusions

4.1 Appropriate Assessment Screening Conclusions

The stage 1 screening process has identified the following QIs and associated conservation features in the SACs that the proposed aquaculture activities spatially overlap with and/or has the potential to significantly affect, so will be carried forward for full Assessment in Stage 2.

- Kenmare River SAC (002158)
    - Large Shallow Inlets and Bays [1160]
    - Reefs [1170]
    - *Lutra lutra* (Otter) [1355]
    - *Phoca vitulina* (Harbour Seal) [1365]
- Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (000365), Glanmore Bog SAC (001879), & Blackwater River SAC (0021730)
    - *Salmo salar* (Salmon) [1106]
    - *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029]

The technical review conducted by WS Atkins Ireland Limited screened in the following list of QIs for SPAs:

- Arctic Tern (*Sterna paradisaea*)
- Cormorant (*Phalacrocorax carbo*)
- Fulmar (*Fulmarus glacialis*)
- Gannet (*Morus bassanus*)
- Guillemot (*Uria aalge*)
- Herring Gull (*Larus argentatus*)
- Kittiwake (*Rissa tridactyla*)
- Lesser Black-backed Gull (*Larus fuscus*)
- Manx Shearwater (*Puffinus puffinus*)
- Peregrine (*Falco peregrinus*)
- Puffin (*Fratercula arctica*)
- Razorbill (*Alca torda*)
- Red-throated Diver (*Gavia stellata*)
- Shag (*Phalacrocorax aristotelis*)
- Storm Petrel (*Hydrobates pelagicus*)
- Common Tern (*Sterna hirundo*)
- Great Black-backed Gull (*Larus marinus*)
- Black Guillemot (*Cepphus grille*)

On the basis that likely significant effects of the proposed activity on the European sites cannot be excluded, these QIs are brought forward for full assessment in the Stage 2 Appropriate Assessment.

4.2 NIS Review Conclusion

Following a review of the NIS supplied by the applicant the following areas require more detail:

- A request for clarification of the mesh size of the nets to be used on the pens should be made from the applicant.
- A request for references to support the claim that stocking density is low compared to international standards should be made to the applicant.
- A request to identify the source of freshwater and the planned quantities to be used for the treatment for Amoeba gill parasite should be made to the applicant.
- The 4 bird species (Cormorant, Peregrine, Red-throated Diver and Shag) will be included for full assessment in the MI assessment.

When the points above are addressed, the NIS supplied by the applicant, in combination with the reports supplied by the Marine Institute, will contain the necessary information/data to proceed to the next stage of the licensing process, and support the carrying out of a full Appropriate Assessment of the proposed activities.

5 Appendix

Full document of the **Deenish Salmon Farm - Technical Review of Screening for Appropriate Assessment: SPAs.- Prepared by WS Atkins Ireland Limited** provided by WS Atkins Ireland Limited.

ATKINS

Member of the SNC-Lavalin Group

Deenish Salmon Farm

T echnical R eview of Screening for Appropriate Assessment: SPAs .

Marine Institute

28/02/2023



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1. Introduction

1.1. Background

Atkins Ireland have been commissioned by the Marine Institute to carry out a technical review of Appropriate Assessments carried out for Finfish Aquaculture Licence renewal in Kenmare Bay, focusing on SPAs (Special Protected Areas). This report deals specifically with the AA screening for Deenish Island salmon farm operated by MOWI. The farm is located off the eastern side of Deenish Island and has been operating since 1995. MOWI took over the site in 2008. They are seeking to increase the licensed area from 14.5ha to 33.5ha (see Figure 1.1). An amendment to the licence operating conditions with regards to harvest restriction is being sought. The original licence allowed for an annual harvest of 500 tonnes and an input of 400,000 smolts annually. In 2011, a temporary amendment to the licence allowed for 800,000 smolts to be inputted every second year. The applicant is requesting that this temporary amendment is added to the licence, along with changing to a Maximum Allowable Biomass of 2,200 tonnes instead of the annual harvest limit of 500 tonnes.

The information used in this review have been taken from the Aquaculture and Foreshore Licence Application (5/01/22), EIAR (30/06/22) and NIS (30/06/22), along with associated appendices provided to the department by the Applicant.

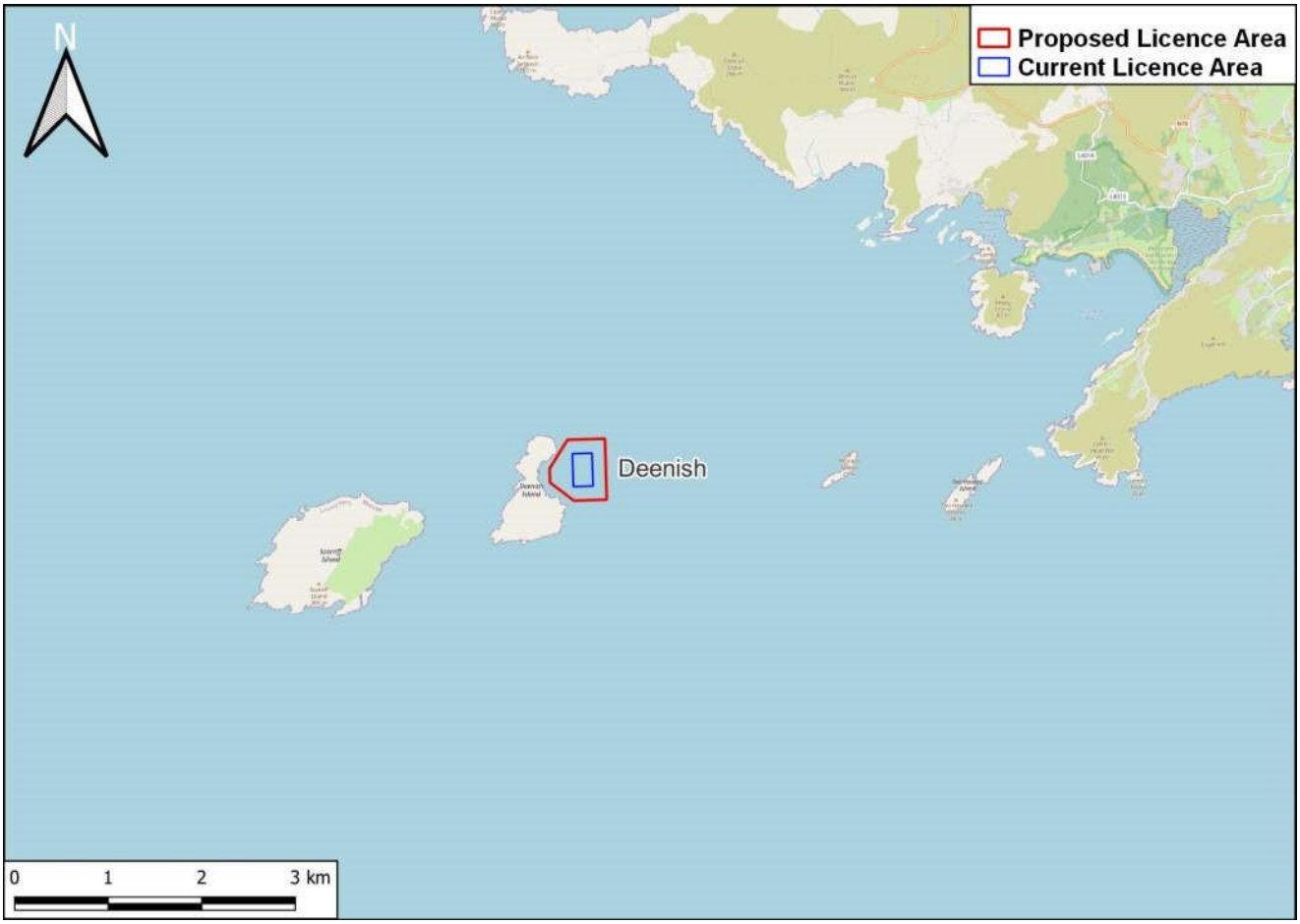

Figure 1.1 – Deenish salmon farm current and proposed licence boundary.

1.2. Legislative Context

1.2.1. Natura 2000

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora ("the Habitats Directive") is a legislative instrument of the European Union (EU) which provides legal protection for habitats and species of Community interest. Article 2 of the Directive requires the maintenance or restoration of such habitats and species at a favourable conservation status, while Articles 3 to 9, inclusive, provide for the establishment and conservation of an EU-wide network of special areas of conservation (SACs), known as Natura 2000, which also includes special protection areas (SPAs) designated under Article 4 of Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds ("the Birds Directive"). Both SACs and SPAs are commonly referred to as "European sites" or "Natura 2000 sites".

SACs are selected for natural habitat types listed on Annex I to the Habitats Directive and the habitats of species listed on Annex II to the Habitats Directive. SPAs are selected for species listed on Annex I to the Birds Directive and other regularly occurring migratory species. The habitats and species for which a Natura 2000 site is selected are referred to as the "qualifying interests" of that site and each is assigned a "conservation objective" aimed at maintaining or restoring its "favourable conservation condition" at the site, which contributes to the maintenance or restoration of its "favourable conservation status" at national and European levels.

1.2.2. Appropriate Assessment

Article 6 of the Habitats Directive deals with the management and protection of Natura 2000 sites. Articles 6(3) and (4) set out the decision-making process, known as "Appropriate Assessment" (AA), for plans or projects in relation to Natura 2000 sites. Article 6(3) states:

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

The first sentence of Article 6(3) provides a basis for determining which plans and projects require AA, i.e. those "*not directly connected with or necessary to the management of [one or more Natura 2000 sites] but likely to have a significant effect thereon, either individually or in combination with other plans or projects*". In *Waddenzee* (C-127/02), the Court of Justice of the European Union (CJEU) ruled that significant effects must be considered "likely" if "*it cannot be excluded, on the basis of objective information*", that they would occur. This clearly sets a low threshold, such that AA is required wherever there is a reasonable possibility of significant effects on a Natura 2000 site. In the same judgment, the CJEU established that the test of significance relates specifically to the conservation objectives of the site concerned, i.e. "significant effects" are those which, "*in the light, inter alia, of the characteristics and specific environmental conditions of the site*", could undermine the site's conservation objectives. In addition to the effects of the plan or project on its own, the combined effects arising from the plan or project under consideration and other plans and projects must also be assessed.

The last part of the first sentence of Article 6(3) defines AA as an assessment of the "*implications [of the plan or project] for the site in view of the site's conservation objectives*". In the second sentence, Article 6(3) requires that, prior to agreeing to a plan or project, the competent authority must "ascertain" that "*it will not adversely affect the integrity of the site concerned*". In *Sweetman v. An Bord Pleanála* (C-258/11), the CJEU ruled that a plan or project "*will adversely affect the integrity of that site if it is liable to prevent the lasting preservation of the constitutive characteristics of the site that are*

connected to the presence of a priority natural habitat whose conservation was the objective justifying the designation of the site in the list of sites". On that basis, EC (2018) described the "integrity of the site" as "*the coherent sum of the site's ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated*". As such, the "integrity" of a specific site is defined by its conservation objectives and is "adversely affected" when those objectives are undermined. In *Waddenzee*, the CJEU ruled that the absence of adverse effects can only be ascertained "*where no reasonable scientific doubt remains*".

The "precautionary principle" applies to all of the legal tests in AA, i.e. in the absence of objective information to demonstrate otherwise, the worst-case scenario is assumed. Where the tests established by Article 6(3) cannot be satisfied, Article 6(4) applies (see explanation in Section 1.3 below).

1.2.3. Competent authority

The requirements of Articles 6(3) and (4) are transposed into Irish law by, inter alia, Part 5 of the European Communities (Birds and Natura Habitats) Regulations, 2011 (as amended) ("the Habitats Regulations") and Part XAB of the Planning and Development Act, 2000 (as amended) ("the Planning and Development Acts"). As per the second sentence of Article 6(3), it is the "competent national authorities" who are responsible for carrying out AA and, by extension, for determining which plans and projects require AA. The competent authority in each case is the authority responsible for consenting to or licensing a plan or project, e.g. local authorities, An Bord Pleanála, the Environmental Protection Agency (EPA) or a Government Minister. In all cases, it is the competent authority who is ultimately responsible for determining whether or not a plan or project requires AA and for carrying out the AA, where required.

1.3. Appropriate Assessment Process

The AA process can be described as being made up of three distinct stages, as described below, the need to progress to each stage being determined by the outcome of the preceding stage.

Stage 1: Screening – This stage involves a determination by the competent authority as to whether or not a given plan or project required AA. As explained in Section 1 above, AA is required in respect of any plan or project not directly connected with or necessary to the management of a Natura 2000 site, but for which the possibility of likely significant effects on one or more Natura 2000 sites cannot be excluded. In *People Over Wind* (C-323/17), the CJEU ruled that measures intended to avoid or minimise harmful effects on a Natura 2000 site cannot be considered in making this determination. Consideration of the potential for in-combination effects is also required at this stage.

Stage 2: Appropriate Assessment – This stage involves a detailed assessment of the implications of the plan or project, individually and in combination with other plans and projects, for the integrity of the Natura 2000 site(s) concerned. This stage also involves the development of appropriate mitigation to address any adverse effects and an assessment of the significance of any residual impacts following the inclusion of mitigation. In *Kelly v. An Bord Pleanála* (IEHC 400), the High Court ruled that a lawful AA must contain complete, precise and definitive findings based on examination and analysis, and conclusions and a final determination based on an evaluation of the findings. In the same judgment, the High Court stressed that, in order for the findings to be complete, precise and definitive, the AA must be carried out in light of best scientific knowledge in the field and cannot have gaps or lacunae. In *Holohan v. An Bord Pleanála* (C-461/17), the CJEU clarified that AA must "*catalogue the entirety of habitat types and species for which a site is protected*" (i.e. the qualifying interests of the site) and assess the implications of the plan or project for the qualifying interests, both within and outside the site boundaries, and other, non-qualifying interest habitats and species, whether inside or outside the site boundaries, "*provided that those implications are liable to affect the conservation objectives of the site*". The proposer of a plan or project requiring AA is furnishes the competent authority with the scientific evidence upon which to base its AA by way of a Natura Impact Statement (NIS) or Natura Impact Report (NIR). If it is not possible to ascertain that the plan or project will not adversely affect one or more Natura 2000 sites, authorisation can only be granted subject to Article 6(4).

Stage 3: Article 6(4) – If a plan or project does not pass the legal test at Stage 2, alternative solutions to achieve its aims must be considered and themselves subject to Article 6(3). If no feasible alternatives exist, authorisation can only be granted where it can be demonstrated that there are imperative reasons of overriding public interest (IROPI) justifying its implementation. Where this is the case, all compensatory measures must be taken to protect the overall coherence of Natura 2000.

The three stages described above are illustrated in Figure 1.2 below.

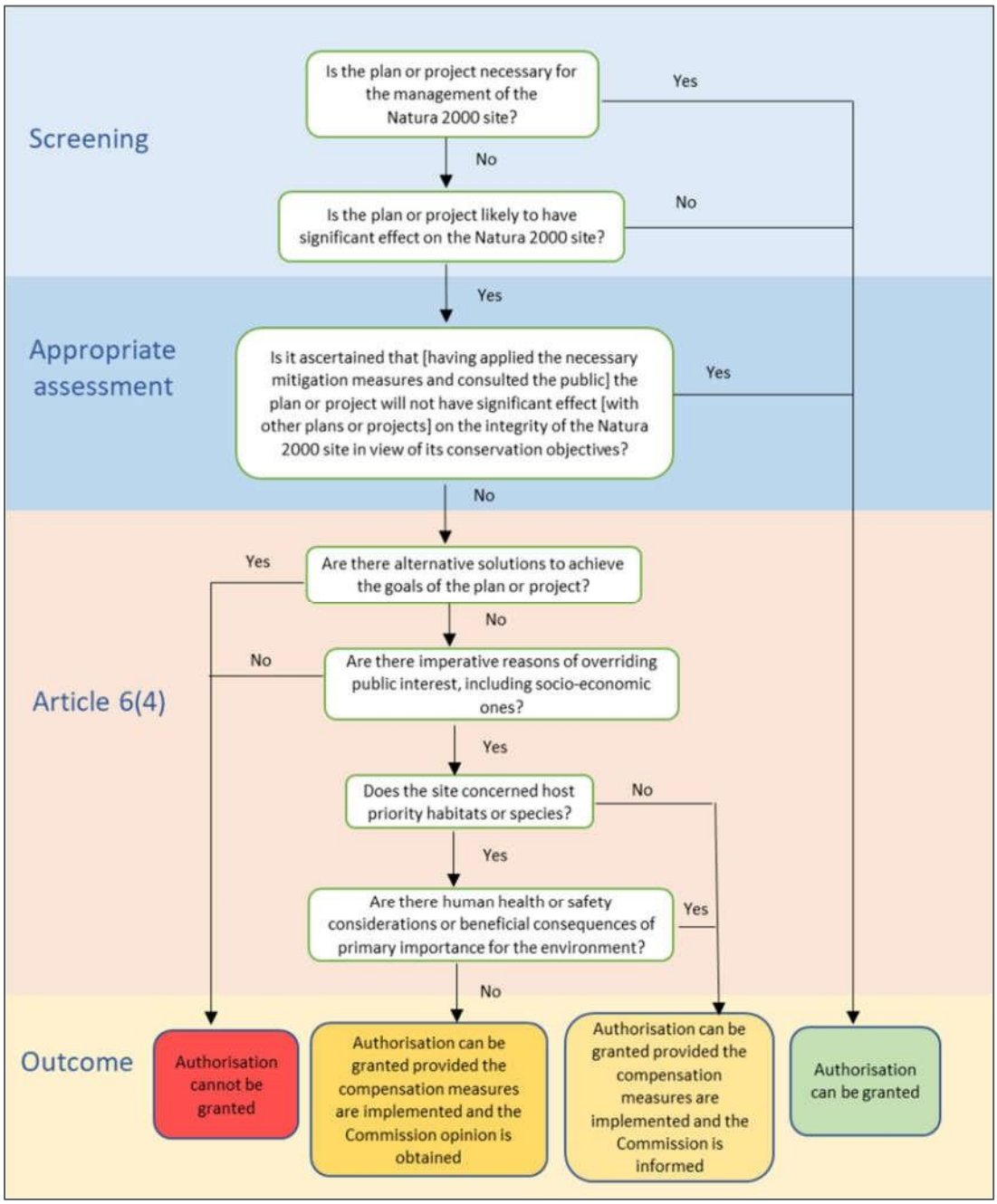

Figure 1.2 - Stages of the Appropriate Assessment process (EC, 2021).

2. Review Methodology

As part of the AA screening process the applicant is required to provide the competent authority with sufficient detail on the project to allow them to undertake a screening for Appropriate Assessment. This information must be of a level sufficient to allow the competent authority to decide on whether or not the plan or project is likely to have significant effects on the Natura 2000 site, either alone or in-combination with other plans or projects.

This report includes a review of the robustness of the AA screening carried out by MOWI. The following elements were considered: -

- Description of the Project and its potential impacts.
- Identification of Natura 2000 sites with the potential to be impacted.
- Assessment of the Phase 1 Screening for Appropriate Assessment determination.

3. Project description

The Applicant provided details on aspect of the project. This section assesses the completeness on this info and whether or not other aspects have been omitted. The assessment can be seen in Table 3.1 below.

Table 3.1 - Assessment of project description.

Project Element	Assessment
Location and site Layout	Maps have been included showing both the existing licence area and the proposed area. Coordinates for the licence area have also been given. Detailed schematics have been provided showing all aspects of the pens and mooring layout.
Pen details	The dimensions and components, along with cleaning and maintenance procedures have been explained thoroughly. Mesh size of nets not given, may have impact on bird entanglement.
Shore based facilities and access	Shore base is located at Travara pier. The location of this pier and other piers in the area in relation to the licensed site have been provided on a map. The access roads to the shore base have also been shown. Information on vehicles which are involved with the running of the site have been provided along with the aspects of the project they will be involve in.
Production Model	Detail is provided of numbers and weight of smolts added, modelled estimate of biomass for each month of the 24-month production cycle, maximum biomass, peak stocking density, and when harvesting will start. It is stated that the stocking density is low by international standards, but no reference has been given to back this up.
Feed and feeding	Feed is used that meets the EU requirements for organic standards. A break down of the main nutritional components of the feed has also been included. The report provides specifics on the feed barge and automatic feed system which includes an underwater camera for monitoring of feeding.
Husbandry	The information provided on smolt delivery, grading, harvesting and processing is sufficient to allow for an assessment of the potential impacts. This section also gives details on monthly discharge totals for BOD, solids, carbon, nitrogen and phosphorus.
Waste Management	This section details the management of fish waste from harvesting and mortalities. The method of disposal/treatment of fish waste and associated wastewater is provided in the report.
Health Management	The procedure followed to monitor fish health is provided. Details of the vaccinations fish receive before being added to the sea farm and methods of treatment for common disease/parasites while at sea are discussed. The frequency of use of treatments from 2010 to 2016 are also included. Particular detail is provided on sea lice treatment and monitoring.
Predator Control	It is stated that bird netting is used to prevent bird predation. This method is used principally as a method of protecting the fish stock as opposed to a mitigation measure to protect birds and so can be considered at the screening stage.

Single Bay Management	This section summaries the Single Bay Management for Kenmare Bay (Full plan is included in the Appendices). All finfish farms in the bay are considered in the plan. The two MOWI sites Deenish and Inishfarnard are the only site currently stocked. The plan aims to
Project Element	Assessment
	coordinate aspects of the farms such as disease/ pest monitoring and treatment on a whole bay approach.
Decommissioning	As there are no permanent aspects to the operation at sea, decommissioning involves removal of the farm components to shore. Any faecal or food waste on the seabed would be dispersed by ocean currents.
Omitted project detail	Source of freshwater for *Amoeba* treatment not given.

4. Receiving Environment

Details on the receiving environment in the vicinity of the project were included in the AA screening. This section assesses the completeness of the info gathered. As this review is focused on SPAs and bird species unrelated species such as cetaceans or otters have not been assessed in terms of the receiving environment. The assessment can be seen in Table 4.1 below.

Table 4.1 - Assessment of Receiving environment.

Receiving Environment	Assessment
Depth and Hydrography	Detail is provided on depths in the bay and specifically in the farm area. The tidal range and current speeds at different tidal stages are included in the report.
Habitats	Potentially not enough information on specific habitat types information given at the screening stage to allow robust screening of some diving bird species.
Birds	A brief description of the SPAs that are in the immediate area of the site have been given in this section. An assessment of available foraging and nesting habitats in the fish farm area was not given. This information would be useful when screening bird species.
Potential Impacts	Impacts identified included organic enrichment, disturbance, entanglement, pest and disease risk, genetic impacts and introduced therapeutants.

5. Identification of Relevant SPAs

As part of the AA screening process all Natura 2000 sites which have the potential of being impacted by the plan or project must be identified. It is important that the criteria used for the selection of sites is not overly restrictive leading to site that could be impacted not being assessed. This review is concerned only with the identification of relevant SPAs with the potential to be impacted by the project. The approach taken by the Applicant was to initially consider all SPAs within 15km of the site. The search was then extended based on 25 seabird species with long foraging ranges. The bird species considered were based on available data from three papers Thaxter *et al*. (2012), Jovani *et al* (2015) and Wakefield *et al*. (2017). All species with coastal or terrestrial habits were not considered.

Initially to assess for potentially missed species this review considered SPAs within 50km of all salmon farms within Kenmare Bay (see Table 5.1 and Figure 5.1).

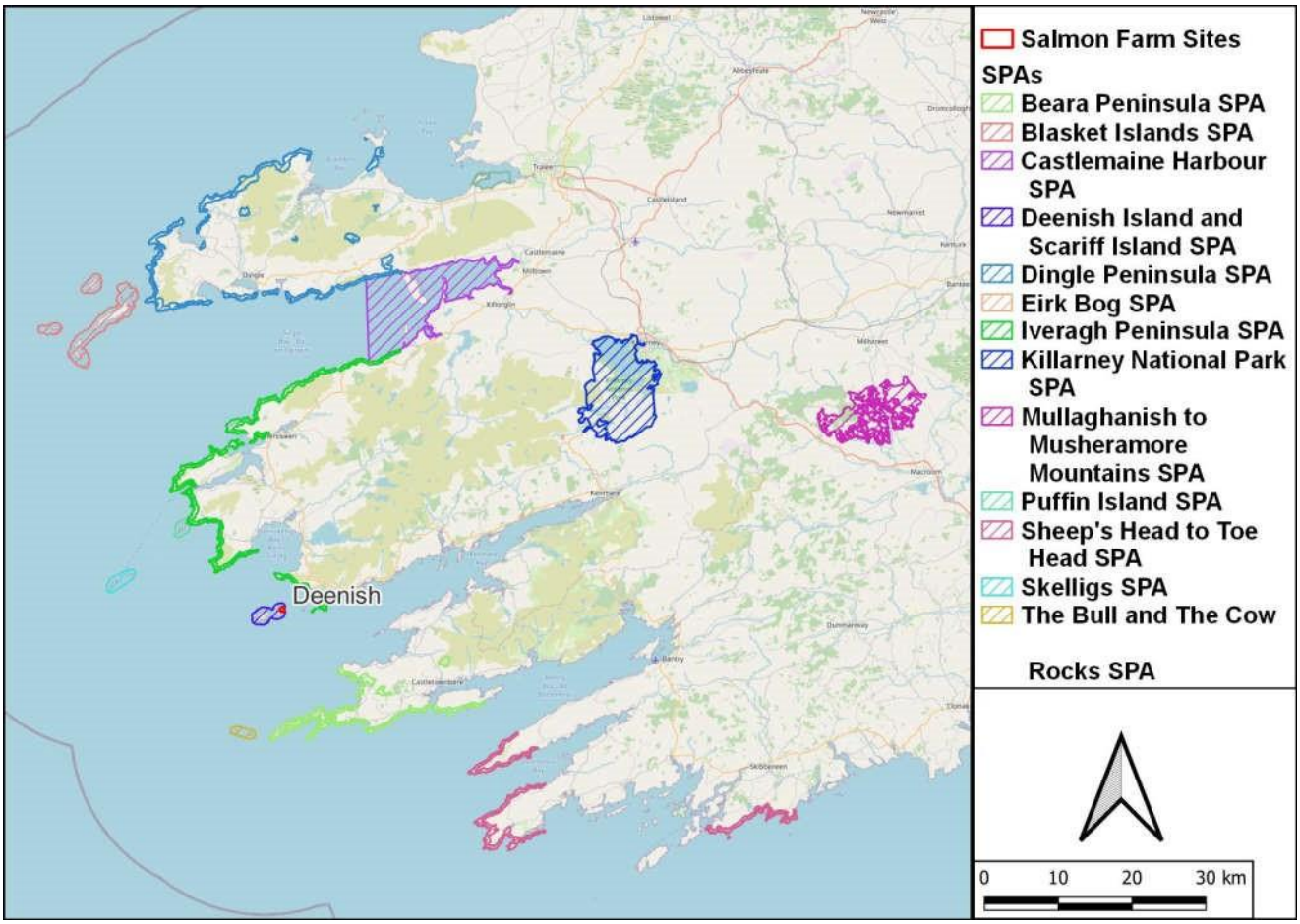

Figure 5.1 – SPAs within 50km of all Salmon Farms in Kenmare Bay.

The full list of qualifying interests for each of the SPAs considered are listed in Table 5.2. In each case the Conservation Objectives document utilised in this assessment are also referenced. This is important as it can be seen that many of these documents were updated by NPWS in 2022.

The QI species identified by both methods can be seen in Table 5.3.

Based on the Applicants approach 16 bird species were identified, of which 12 were screened in. Common Tern was screened in as a QI of Castlemaine Harbour SPA; however, this is not a QI of this SPA. As such 11 species were screened in

correctly. Based on the approach taken by this review a further 15 were identified along with the species identified by the Applicant. Out of the total 31 species 15 were screened in. While not a QI of a designated site for completeness we would recommend that potential impacts on Common Tern are also assessed.

The extra four screened in species included Cormorant, Peregrine, Red-throated Diver, and Shag. Reasons for screening in of these species can be seen in Table 5.3.

In addition to these species, the Applicant also screened in Black Guillemot and Great Black-backed Gull (see Table 5-4). As neither of these species seems to currently covered by the SPA network, we would recommend that they are considered for completeness.

Table 5.1 - SPAs within 50km of all Kenmare Bay salmon farm.

SPAs (within 50km)	Distance to Site (km)
Deenish Island and Scariff Island IE004175	0
Iveragh Peninsula IE004154	3.3
Beara Peninsula IE004155	10.5
Puffin Island IE004003	16.1
The Bull and The Cow Rocks IE004066	16.4
Skelligs IE004007	20
Sheep's Head to Toe Head IE004156	32.8
Castlemaine Harbour IE004029	34.7
Dingle Peninsula IE004153	40.6
Blasket Island IE004008	41.2
Erick Bog IE004108	43.4
Killarney National Park IE004038	46.5

Table 5.2 - SPAs within 50km of all Kenmare Bay salmon farms and their qualifying interests.

SPAs (within 50km)	Qualifying Interests
Deenish Island and Scariff Island SPA[34] IE004175	Fulmar (*Fulmarus glacialis*) [A009] Manx Shearwater (*Puffinus puffinus*) [A013] Storm Petrel (*Hydrobates pelagicus*) [A014] Lesser Black-backed Gull (*Larus fuscus*) [A183] Arctic Tern (*Sterna paradisaea*) [A194]
Iveragh Peninsula SPA[35] IE004154	Fulmar (*Fulmarus glacialis*) [A009] Peregrine (*Falco peregrinus*) [A103] Kittiwake (*Rissa tridactyla*) [A188] Guillemot (*Uria aalge*) [A199] Chough (*Pyrrhocorax pyrrhocorax*) [A346]
Beara Peninsula SPA[36] IE004155	Fulmar (*Fulmarus glacialis*) [A009] Chough (*Pyrrhocorax pyrrhocorax*) [A346]
Puffin Island SPA[37] IE004003	Fulmar (*Fulmarus glacialis*) [A009] Manx Shearwater (*Puffinus puffinus*) [A013] Storm Petrel (*Hydrobates pelagicus*) [A014] Lesser Black-backed Gull *(Larus fuscus*) [A183] Razorbill (*Alca torda*) [A200] Puffin (*Fratercula arctica*) [A204]
The Bull and The Cow Rocks SPA[38] IE004066	Storm Petrel (*Hydrobates pelagicus*) [A014] Gannet (*Morus bassanus*) [A016] Puffin (*Fratercula arctica*) [A204]
Skelligs SPA[39] IE004007	Fulmar (*Fulmarus glacialis*) [A009] Manx Shearwater (*Puffinus puffinus*) [A013] Storm Petrel (*Hydrobates pelagicus*) [A014] Gannet (*Morus bassanus*) [A016] Kittiwake (*Rissa tridactyla*) [A188] Guillemot (*Uria aalge*) [A199] Puffin (*Fratercula arctica*) [A204]

[34] NPWS (2022). *Conservation objectives for Deenish Island and Scariff Island SPA [004175]. First Order Site-specific Conservation Objectives Version 1.0*. Department of Housing, Local Government and Heritage.

[35] NPWS (2022). *Conservation objectives for Iveragh Peninsula SPA [004154]. First Order Site specific Conservation Objectives Version 1.0.* Department of Housing, Local Government and Heritage.

[36] NPWS (2022). *Conservation Objectives: Beara Peninsula SPA 004155. Version 1.* National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

[37] NPWS (2022). *Conservation objectives for Puffin Island SPA [004003]. First Order Site-specific Conservation Objectives Version 1.0.* Department of Housing, Local Government and Heritage.

[38] NPWS (2022). *Conservation objectives for The Bull and The Cow Rocks SPA [004066]. First Order Site-specific Conservation Objectives Version 1.0.* Department of Housing, Local Government and Heritage.

[39] NPWS (2022). *Conservation objectives for Skelligs SPA [004007]. First Order Site-specific Conservation Objectives Version 1.0.* Department of Housing, Local Government and Heritage.

Sheep's Head to Toe Head SPA[40] IE004156	Peregrine (*Falco peregrinus*) [A103] Chough (*Pyrrhocorax pyrrhocorax*) [A346]

[40] NPWS (2022). *Conservation objectives for Sheep's Head to Toe Head SPA [004156]. First Order Site-specific Conservation Objectives Version 1.0.* Department of Housing, Local Government and Heritage.

SPAs (within 50km)	Qualifying Interests
Castlemaine Harbour SPA[41] IE004029	Red-throated Diver (*Gavia stellata*) [A001] Cormorant (*Phalacrocorax carbo*) [A017] Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Wigeon (*Anas penelope*) [A050] Mallard (*Anas platyrhynchos*) [A053] Pintail (*Anas acuta*) [A054] Scaup (*Aythya marila*) [A062] Common Scoter (*Melanitta nigra*) [A065] Oystercatcher (*Haematopus ostralegus*) [A130] Ringed Plover (*Charadrius hiaticula*) [A137] Sanderling (*Calidris alba*) [A144] Bar-tailed Godwit (*Limosa lapponica*) [A157] Redshank (*Tringa totanus*) [A162] Greenshank (*Tringa nebularia*) [A164] Turnstone (*Arenaria interpres*) [A169] Chough (*Pyrrhocorax pyrrhocorax*) [A346] Wetland and Waterbirds [A999]
Dingle Peninsula SPA[42] IE004153	Fulmar (*Fulmarus glacialis*) [A009] Peregrine (*Falco peregrinus*) [A103] Chough (*Pyrrhocorax pyrrhocorax*) [A346]
Blasket Island SPA[43] IE004008	Fulmar (*Fulmarus glacialis*) [A009] Manx Shearwater (*Puffinus puffinus*) [A013] Storm Petrel (*Hydrobates pelagicus*) [A014] Shag (*Phalacrocorax aristotelis*) [A018] Lesser Black-backed Gull (*Larus fuscus*) [A183] Herring Gull (*Larus argentatus*) [A184] Kittiwake (*Rissa tridactyla*) [A188] Arctic Tern (*Sterna paradisaea*) [A194] Razorbill (*Alca torda*) [A200] Puffin (*Fratercula arctica*) [A204] Chough (*Pyrrhocorax pyrrhocorax*) [A346]
Eirk Bog SPA[44] IE004108	Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]

[41] NPWS (2011). *Conservation Objectives: Castlemaine Harbour SAC 000343 and Castlemaine Harbour SPA 004029. Version 2.0.* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

[42] NPWS (2022). *Conservation objectives for Dingle Peninsula SPA [004153]. First Order Site specific Conservation Objectives Version 1.0.* Department of Housing, Local Government and Heritage.

[43] NPWS (2022). *Conservation objectives for Blasket Islands SPA [004008]. First Order Site specific Conservation Objectives Version 1.0.* Department of Housing, Local Government and Heritage.

[44] NPWS (2022). *Conservation objectives for Eirk Bog SPA [004108]. First Order Site-specific Conservation Objectives Version 1.0.* Department of Housing, Local Government and Heritage.

Killarney National Park SPA[45] IE004038	Merlin (*Falco columbarius*) [A098] Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]

[45] NPWS (2022). *Conservation objectives for Killarney National Park SPA [004038]. First Order Site-specific Conservation Objectives Version 1.0.* Department of Housing, Local Government and Heritage.

Table 5.3 - Assessment of identified SPA Qualifying Species.

Qualifying Species	Guild	**(Closest SPA)**	Applicant Identified	Review Identified	Applicant Screened In/Out	Review Screened In/Out	Comments
Arctic Tern (*Sterna paradisaea*)	Seabird (br.)	**0km**	Yes	Yes	In	In	Previously bred on Deenish Island but have moved to Two Headed Island (NPWS, 2019) Pens overlap with potential feeding habitat. To be explored further in NIS.
Bar-tailed Godwit (*Limosa lapponica*)	Intertidal wader (w)	**34.7km**	No	Yes	n.a.	Out	There is no overlap with feeding or wintering habitat.
Chough (*Pyrrhocorax pyrrhocorax*)	Coastal terrestrial corvid (r.)	**3.3km**	Yes	Yes	Out	Out	No records of Chough on Deenish or Scarriff from NPWS (2019). Screened out pending results from 2021 Chough survey **(release expected early 2023)**
Common Scoter (*Melanitta nigra*)	Diving marine duck (w)	**34.7km**	No	Yes	n.a.	Out	Small numbers (100's) winter in Ballinskelligs Bay[46], main population is Dingle Bay. Not known to move to waters off Deenish.
Cormorant (*Phalacrocorax carbo*)	Fish eating diving species (r.)	**34.7km**	Yes	Yes	Out	In	Overlap with potential feeding habitat. NPWS (2019) no records of breeding birds on Deenish Island, closest breeding record on Eyeries Island (16.3km). The maximum foraging distance listed by the applicant was 35km, however, the species was screened out despite Castlemaine Harbour being within that distance. Screening status to be confirmed.

[46] www.irishbirding.com

Fulmar (*Fulmarus glacialis*)	Seabird (br.)	**0km**	Yes	Yes	In	In	Breeding occurs on Deenish Island, with a larger breeding population on Scarriff Island. Pens overlap with potential feeding habitat. To be explored further in NIS.

Qualifying Species	Guild	**(Closest SPA)**	Applicant Identified	Review Identified	Applicant Screened In/Out	Review Screened In/Out	Comments
Gannet (*Morus bassanus*)	Seabird (br.)	**16.4km**	Yes	Yes	In	In	Breed on Skellig SPA and The Bull and The Cow Rocks SPA. Cages overlap with potential feeding habitat. Ongoing issue with high mortality in Gannet from avian flu to be considered. To be explored further in NIS.
Greenland White-fronted Goose (*Anser albifrons flavirostris*)	Terrestrial goose; grazer (w.)	**43.4km**	No	Yes	n.a.	Out	There is no overlap with feeding or wintering habitat. Offshore roosting is a feature of Greylag geese (Lambay) and Barnacle Geese (e.g. Inishkea Islands). However, there is no evidence of birds roosting on Deenish.
Greenshank (*Tringa nebularia*)	Intertidal wader (w.)	**34.7km**	No	Yes	n.a.	Out	There is no overlap with feeding or wintering habitat. Greenshank not known to breed.
Guillemot (*Uria aalge*)	Seabird (br.)	**3.3km**	Yes	Yes	In	In	Overlap with breeding habitat, no records of breeding on Deenish or Scarriff Islands.
Herring Gull (*Larus argentatus*)	Seabird (r.)	**41.2km**	Yes	Yes	In	In	NPWS (2019) confirmed breeding on Deenish. Overlap with potential feeding habitat.

Kittiwake (*Rissa tridactyla*)	Seabird (br.)	**3.3km**	Yes	Yes	In	In	Overlap with potential feeding habitat, close proximity to nearest SPA.
Lesser Black-backed Gull (*Larus fuscus*)	Seabird (br.)	**0km**	Yes	Yes	In	In	Breed on Deenish Island (NPWS, 2019) and pens overlap with potential feeding habitat.
Light-bellied Brent Goose (*Branta bernicla hrota*)	Coastal goose (w.)	**34.7km**	No	Yes	n.a.	Out	Not known to occur in this area. There is no overlap with feeding or wintering habitat
Mallard (*Anas platyrhynchos*)	Dabbling duck (r.)	**34.7km**	No	Yes	n.a.	Out	While Mallard does occur in Kenmare Bay, there is no overlap with feeding, wintering or breeding habitat with the sea cages at Deenish.
Manx Shearwater (*Puffinus puffinus*)	Seabird (br.)	**0km**	Yes	Yes	In	In	Overlap with breeding and feeding habitat. Risk of lighting associated with sea cages

Qualifying Species	Guild	**(Closest SPA)**	Applicant Identified	Review Identified	Applicant Screened In/Out	Review Screened In/Out	Comments
							also to be considered. Large breeding population records on Deenish from the Seabird 2000 survey, however, no records were provided in the NPWS, 2019 data.
Merlin (*Falco columbarius*)	Raptor (br.)	**46.5km**	No	Yes	n.a.	Out	Merlin breeding on upland sites do move to coastal areas to forage. These are also supplemented by winter birds many of Icelandic origin. However, the offshore cages do not overlap with feeding or breeding habitat.

Oystercatcher (*Haematopus ostralegus*)	Intertidal wader (w.) (also breeds locally)	**34.7km**	Yes	Yes	Out	Out	Where Oystercatcher is listed as a QI for a SPA, this is for wintering population, It is noted in the Site synopsis for Deenish Island and Scariff Island SPA that they breed on Scariff Island. No records of Oystercatcher breeding on Deenish Island were available. Rock shores of Scariff Island and Deenish Island provide suitable foraging habitat for Oystercatcher.
Peregrine (*Falco peregrinus*)	Raptor	**3.3k**	Yes	Yes	Out	In	No Peregrine nests were recorded on Deenish Island during the 2017 Peregrine survey. NBDC has a probable record of breeding in the 10km square that the site sits in. Potential to impact on prey availability if site effects prey abundance should be considered. (Prey includes coastal species; shorebirds and seabirds). One peregrine was seen on Deenish Island during the 2019 survey of seabirds (NPWS, 2019).

Qualifying Species	Guild	**(Closest SPA)**	Applicant Identified	Review Identified	Applicant Screened In/Out	Review Screened In/Out	Comments
Pintail (*Anas acuta*)	Dabbling duck (w.)	**34.7km**	No	Yes	n.a.	Out	There is no overlap with feeding or wintering habitat.

Puffin (*Fratercula arctica*)	Seabird (br.)	**16.1km**	Yes	Yes	In	In	Overlap with feeding habitat, not known to breed on Deenish. However, the Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991 (NBDC) (V45) did note under breeding evidence that bird was Seen. NPWS (2019) requested data had no records of Puffins on Deenish.
Razorbill (*Alca torda*)	Seabird (br.)	**16.1km**	Yes	Yes	In	In	Overlap with feeding habitat, not known to breed on Deenish. However, the Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991 (NBDC) (V45) did note under breeding evidence that bird was Seen. NPWS (2019) requested data had no records of Razorbill on Deenish.
Redshank (*Tringa totanus*)	Intertidal wader (w.)	**34.7km**	No	Yes	n.a.	Out	There is no overlap with feeding or wintering habitat. No evidence of local breeding.
Red-throated Diver (*Gavia stellata*)	Fish eating diving species (w.)	**34.7km**	Yes	Yes	Out	In	Overlap with winter feeding habitat. Does not breed close to the study area; restricted to breeding in Co. Donegal (Crowe *et al*. 2021). More information needed on foraging ranges.
Ringed Plover (*Charadrius hiaticula*)	Intertidal wader (also breeds locally)	**34.7km**	No	Yes	n.a.	Out	No overlap with winter feeding habitat. Not known to breed on Deenish. NPWS (2019) requested data had no records of Ringed Plover on Deenish..
Sanderling (*Calidris alba*)	Intertidal wader (w.)	**34.7km**	No	Yes	n.a.	Out	No overlap with feeding or wintering habitat
Scaup	Diving duck (w.)	**34.7km**	No	Yes	n.a.	Out	No overlap with feeding or wintering habitat

Qualifying Species	Guild	**(Closest SPA)**	Applicant Identified	Review Identified	Applicant Screened In/Out	Review Screened In/Out	Comments
(*Aythya marila*)							
Shag (*Phalacrocorax aristotelis*)	Fish eating diving species (r.)	**41.2km**	No	Yes	n.a.	In	Overlaps with feeding habitat and potential breeding habitat on Deenish. Shag recorded breeding on Deenish Island (NPWS, 2019)
Storm Petrel (*Hydrobates pelagicus*)	Seabird (br.)	**0km**	Yes	Yes	In	In	Overlap with feeding and breeding occurs on Deenish. Internationally important Storm Petrel Population.
Turnstone (*Arenaria interpres*)	Wader of rock shores (w.)	**34.7km**	No	Yes	n.a.	Out	No overlap with breeding habitat. Likely to occur on rocky shores of the Island, however; species is tolerant of human activity.
Wigeon (*Anas penelope*)	Grazing duck (w.)	**(34.7km)**	No	Yes	n.a.	Out	There is no overlap with feeding or wintering habitat; no evidence of breeding.

Table 5.4 - Additional Species which should be considered.

Qualifying Species	Guild	**(Closest SPA)**	Comments
Common Tern (*Sterna hirundo*)	Seabird (br.)	Magharee Islands SPA (004125) to the west of Tralee.	The nearest SPA which includes Common Tern as a breeding species is Magharee Islands SPA (004125). However, Balmer *et al*. 2013 record it breeding extensively around Kenmare Bay and islands. The assessment should therefore consider both breeding and post-breeding autumnal aggregations of Common Tern [47] for completeness.

[47] Burke, B., Fitzgerald, N., Boland, H., Murray, T., Gittings, T. and Tierney, T.D. (2020). Results from the first three years of monitoring post-breeding tern aggregations in Ireland. *Irish Birds* 42:35-44.

Great Black-backed Gull (*Larus marinus*)	Intertidal wader (w)	n.a.	No SPAs currently appear to be designated for Great Black-backed Gull. However, as it is a key part of the group of gull species frequenting Kenmare Bay and environs. It should therefore also be considered further in the assessment of potential impacts.
Black Guillemot (*Cepphus grille*)	Seabird (br.)	n.a.	No SPAs currently appear to be designated for Black Guillemot. Balmer *et al*. 2013 record it breeding extensively around Kenmare Bay and islands. It should therefore also be considered further in the assessment of potential impacts.

6. Assessment of screening determination

6.1. Preliminary Findings

The applicant has provided a detailed description of almost all aspects of the project. Areas where detail has been lacking are as follows: -

- The report states that mesh size of the pen nets is smaller for smolts but does not provide the mesh sizes. The mesh size is important for assessing potential entanglement risk for diving birds. Mesh sizes required for cleaner fish are listed in the appendices, along with the mesh size for bird netting over the pens (6-inch square or smaller). The mesh size is given in the Aquaculture and Foreshore Licence application form as 32mm. As the NIS mentions that there are different mesh sizes depending on life stage/ size of salmon more detail is needed.

- It is stated that stocking density is low compared to international standards without providing a reference to confirm this.

- The treatment for *Amoeba* gill parasite is to bath the fish in freshwater. The source of freshwater or the quantities required has not been given. The abstraction of water from watercourse has the potential to impact on wetland bird species. This could potentially affect the zone of influence of the project and the screening of bird species for the purpose of the AA process.

The screening assessment carried out in this review has screened in four bird species that were not brought forward to Stage 2 AA by the applicant. These include Cormorant, Peregrine, Red-throated Diver and Shag.

6.2. In Combination Impacts

Deenish Island is one of four farm applications currently being considered. The full list of sites is as follows: -

- Deenish Island
- Inishfarnard
- Doon Point
- Killmacillogue

While the potential for cumulative or in-combination impacts must be considered as part of the Appropriate Assessment process, it is clear from the review presented that the proposal to farm finfish at Deenish Island must progress to Stage 2 and a Natura Impact Statement should be prepared. It is at this stage that a comprehensive assessment of potential cumulative impacts must also be undertaken.

6.3. Conclusion

It cannot be excluded beyond reasonable scientific doubt, in view of best scientific knowledge, on the basis of objective information and in light of the conservation objectives of the relevant European sites, that the proposed development, individually or in combination with other plans and projects, would be likely to have a significant effect on European sites as listed above.

As a result, a Stage Two Appropriate Assessment is required, and it is concluded that the Applicant was correct to prepare a Natura Impact Statement.

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