

Inland Fisheries Ireland

Appropriate Assessment Screening and Natura Impact Statement for Native Oyster (*Ostrea edulis*) Dredging in Tralee Bay, County Kerry

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AQUAFAC REF: P21371

2026

COMMERCIAL IN CONFIDENCE



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Report Approval Sheet

Client	Inland Fisheries Ireland
Report Title	Appropriate Assessment Screening and Natura Impact Statement for Native Oyster (<i>Ostrea edulis</i>) Dredging in Tralee Bay, County Kerry
Job Number	P21371
Report Status	Final v2
Issue Date	12/10/2026
Report Type	Appropriate Assessment

Rev	Status	Issue Date	File Name	Author(s)	Approved By
1	Draft v1	25/09/2026	P21371_AA_Tralee_Draftv1	BD, AL	AL
2	Final v2	12/10/2026	P21371_AA_Tralee_Finalv2	BD, AL	AL

Contents

1.	Introduction.....	1
1.1.	Statement of Authority	1
2.	Background to the Appropriate Assessment.....	2
2.1.	Overview	2
2.2.	Guidance/Legislation.....	3
3.	Stages of Appropriate Assessment.....	5
3.1.	Stage 1: Screening for Appropriate Assessment.....	6
3.2.	Stage 2: Appropriate Assessment	6
3.3.	Alternative Solutions.....	7
3.4.	Imperative Reasons for Overriding Public Interest.....	7
4.	Screening Stage	8
4.1.	Description of the Project	8
4.1.1.	Overview	8
4.1.2.	General Location.....	8
4.1.3.	Site Access.....	11
4.1.4.	Works Duration.....	11
4.1.5.	Works Description	11
4.2.	Assessment Methodology: Source-Pathway-Receptor.....	13
4.3.	Identification of Potential Impact Mechanisms.....	15
4.3.1.	Physical habitat disturbance.....	15
4.3.2.	Increased suspended sediments and smothering.....	16

4.3.3.	Impacts on benthic community structure	17
4.3.4.	Effects on prey resources and the trophic food chain.....	18
4.3.5.	Above water visual and noise disturbance.....	19
4.3.6.	Underwater noise disturbance	20
4.4.	European sites in the Zol.....	20
4.4.1.	Special Areas of Conservation (SAC).....	23
4.4.2.	Special Protection Areas (SPA)	28
4.4.3.	Mobile Annex II species	40
4.5.	Screening for Potential Likely Significant Effects	49
4.5.1.	Qualifying Interests.....	49
4.5.2.	Special Conservation Interests	64
4.6.	Plans or Projects that Might Act In-Combination	91
4.6.1.	Threats and Pressures.....	92
4.6.2.	Plans and projects.....	96
4.6.3.	Aquaculture	97
4.6.4.	Initiatives	98
4.6.5.	Navigational and marine traffic	98
4.6.6.	Conclusions.....	98
4.7.	Screening Outcome and Concluding Statement	105
5.	Stage 2: Natura Impact Statement	107
5.1.	Overview	107
5.2.	Impact prediction.....	110
5.2.1.	Physical habitat disturbance.....	116

5.2.2.	Increased suspended sediments and smothering	118
5.2.3.	Impacts on benthic community structure	120
5.2.4.	Effects on prey resources and the trophic food chain.....	124
5.2.5.	Above-water visual and noise disturbance.....	128
5.2.6.	Underwater noise disturbance	140
5.3.	Summary of mitigation measures	142
5.4.	Assessment of in-combination effects.....	142
5.5.	Conclusion.....	142
6.	References	144
7.	Appendices	148
7.1.	Appendix 1	148

Table of Figures

Figure 3-1: Four stages of the AA process.....	5
Figure 4-1: Proposed dredging areas for Inner and Outer Tralee Bay and associated benthic habitat types (NPWS, 2025).....	9
Figure 4-2 SACs within the Zone of Influence (Zol) of the Project.	21
Figure 4-3: SPAs in the one of Influence (Zol) of the Project.	22

List of Tables

Table 4-1: Area and percentage of the proposed dredge areas in Outer Tralee occupied by each mapped benthic community type.	10
Table 4-2: Area and percentage of the proposed dredging area in Inner Tralee occupied by each mapped benthic community type.	10
Table 4-3: Qualifying Interests (QIs) for SACs in the Zone of Influence (Zol) of the Project.	25
Table 4-4: Review of published seabird foraging ranges during the breeding season, summarised from Thaxter et al. (2012), Jovani et al. (2016), Wakefield et al. (2017) and Woodward et al. (2019). Foraging-range values are used as contextual evidence of potential functional connectivity and are not applied as absolute exclusion distances. Mean values provide an indication of typical foraging movements, while mean maximum and maximum values indicate the potential for wider movements. Connectivity is assessed having regard to distance together with the seasonal status of the SCI population, habitat suitability and available evidence of species use of Tralee Bay. Figures in bold indicate mean foraging ranges used to calculate connectivity with the Project.	30
Table 4-5: Foraging and commuting distances used to inform screening of non-seabird and non-breeding waterbird SCIs.....	32
Table 4-6: Special Protection Areas (SPAs) and their Special Conservation Interests (SCIs) within the Zol of the proposed Project. Species in bold have functional connectivity between The Project and their respective SPA and require further consideration in the screening assessment.	36
Table 4-7: Special Areas of Conservation (SACs) and designated Annex II marine mammal species distance to the proposed Project area. SACs screened in and included in the assessment in section 4.4.3 are highlighted in bold as a population level effect cannot be excluded for these SACs given their proximity to The Project. ...	47
Table 4-8: Stage 1 assessment for Qualifying Interests of SACs identified within the Zol of the Project.	50
Table 4-9: Assessment of potential significant effects from the impact mechanisms to Special Conservation Interests (SCIs).	65
Table 4-10: Natura 2000 Standard Data Form for Tralee Bay Complex SPA threats and pressures.....	92
Table 4-11: Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC threats and pressures.	93

Table 4-12: Assessment of potential in-combination effects projects within the Tralee Bay Project area....	100
Table 4-13: Appropriate Assessment screening conclusion table.....	105
Table 5-1: Conservation features screening in for Stage 2 assessment.	111
Table 5-2: Disturbance risk categories of the listed bird species (sensu Furness et al., 2013).	129
Table 5-3: Sensitivity criteria.	129
Table 5-4: Suitability and use of habitat within the proposed dredge areas by screened-in bird SCIs, based on NPWS (2014) distribution data and species ecology. A score of 1 represents direct use of habitat within the active dredging area, while a score of 4 represents little or no functional overlap with active dredging.....	131
Table 5-5: Habitat flexibility scores (sensu Furness et al., 2013).	132
Table 5-6: Significance of effects.....	132
Table 5-7: Assessment of the significance of effects on screened in SCIs.	134

Appendices

Appendix 1: Native oyster (*Ostrea edulis*) dredging impact study Tralee Bay, Blacksod Bay & Lough Swilly

Glossary of terms

Abbreviation	Full term
AA	Appropriate Assessment
ACP	An Coimisiún Pleanála
AQUAMIS	Aquaculture Information Management System
BIM	Bord Iascaigh Mhara
BoCCI	Birds of Conservation Concern in Ireland
CIEEM	Chartered Institute of Ecology and Environmental Management
DAFM	Department of Agriculture, Food and the Marine
DAHG	Department of Arts, Heritage and the Gaeltacht
DEHLG	Department of the Environment, Heritage and Local Government
DHLGH	Department of Housing, Local Government and Heritage
DHPLG	Department of Housing, Planning and Local Government
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
EU	European Union
GIS	Geographic Information System
GPS	Global Positioning System
HD	Habitats Directive
IFI	Inland Fisheries Ireland
IROPI	Imperative Reasons of Overriding Public Interest
I-WeBS	Irish Wetland Bird Survey
KCC	Kerry County Council
KCDP	Kerry County Development Plan
LSE	Likely Significant Effects
MAC	Maritime Area Consent

MARA	Maritime Area Regulatory Authority
MUL	Maritime Usage Licence
NBDC	National Biodiversity Data Centre
NIS	Natura Impact Statement
NPWS	National Parks and Wildlife Service
OPR	Office of the Planning Regulator
QGIS	QGIS geographic information system software
QI	Qualifying Interest
SAC	Special Area of Conservation
SCI	Special Conservation Interest
S-P-R	Source–Pathway–Receptor
SPA	Special Protection Area
ZoI	Zone of Influence

1. Introduction

1.1. Statement of Authority

This report has been prepared by B. Dickerson (B.Sc., M.Sc., LL.M., Qualifying CIEEM) who is a senior consultant with AQUAFACT – APEM Group, specialising in environmental and ecological assessment for marine projects in Ireland. He holds a B.Sc. (Hons) in Marine Science from the University of Galway, an M.Sc. in Marine Biology, and an LL.M. in Environmental Law from University College Cork. He has extensive expertise in EU and Irish environmental legislation, including the Habitats Directive, Birds Directive, the Marine Strategy Framework Directive, and Ireland’s National Marine Planning Framework. His experience includes Environmental Impact Assessment Reports (EIARs), leading Appropriate Assessment (AA) and Natura Impact Statement (NIS) evaluations for Irish marine SACs and SPAs, addressing conservation objectives, habitat connectivity, and significant effects. He is also knowledgeable in marine survey design, habitat and species assessments, and the analysis and reporting required to support robust regulatory submissions for both public and private sector clients.

This report has been reviewed by Dr A. Long, Principal Consultant and Consultancy Team Lead with AQUAFACT – APEM Group. He has over a decade of experience in marine ecology, fisheries science and environmental assessment across consultancy, government and academia. His experience includes Appropriate Assessment, Environmental Impact Assessment, WFD assessment, MSFD assessment, fisheries science, fish/shellfish ecology and marine ecological data analysis. He has authored more than 75 technical reports and several peer-reviewed scientific publications in environmental assessment and fisheries science.

2. Background to the Appropriate Assessment

2.1. Overview

This Appropriate Assessment (AA) Screening and Natura Impact Statement (NIS) has been prepared by AQUAFAC on behalf of Inland Fisheries Ireland (IFI) in support of the licensing of native oyster (*Ostrea edulis*) dredging in Tralee Bay, County Kerry (“the Project”). The report has been prepared to provide the information necessary to inform IFI, as the competent authority, in carrying out its Appropriate Assessment of the Project under Article 6(3) of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitat Directive).

Inland Fisheries Ireland (IFI) is the State agency responsible for the protection, management, conservation and development of Ireland’s inland fisheries resources and fish habitats. IFI also undertakes applied fisheries research, including monitoring fish stocks and assessing environmental pressures affecting fish and their habitats. As part of its statutory functions, IFI administers licences that permit certain fishers to undertake dredging for native oysters (*Ostrea edulis*) within designated fishing areas. Dredging licenses are issued for a period of ten years.

The Project comprises the licensed dredging of native oysters within defined areas of Tralee Bay by licensed fishers. Native oyster dredging generally takes place between September and April inclusive and is undertaken using a four-foot (1.22 m) dredge, which is fished from the rear or side of a vessel and towed across the seabed to collect oysters. The purpose of the Project is to facilitate the continued licensed harvesting of native oysters in Tralee Bay, subject to the requirements necessary to protect the ecological integrity and conservation objectives of relevant European sites.

The Stage 1 AA Screening has been prepared to assess the potential for the Project, either alone or in combination with other plans or projects, to have likely significant effects (LSE) on European sites in view of their conservation objectives. The Natura Impact Statement (NIS) provides the information required to inform the Stage 2 Appropriate Assessment of whether the Project provides the information required to assess whether the Project, taking account of appropriate mitigation and Fisheries Management Measures, would adversely affect the integrity of any European site. The assessment is informed by a Native Oyster Dredging Impact Study (Appendix 1), together with available ecological, fisheries and conservation information, including NPWS conservation objectives and supporting documentation, Marine Institute and BIM shellfish stock information, previous fisheries management information, available habitat mapping and relevant scientific literature.

Particular consideration is given to the potential for physical disturbance of oyster beds and associated benthic habitats, removal of native oysters from the population, changes to oyster-bed structure and habitat complexity, disturbance or displacement of associated benthic fauna, sediment resuspension and localised seabed disturbance, effects on recruitment, spawning stock and longer-term population resilience, and repeated or cumulative disturbance over successive fishing seasons. The assessment also considers potential interactions with other protected habitats and species and whether effects could arise in combination with other existing, permitted or proposed plans and projects.

2.2. Guidance/Legislation

This report has been prepared in accordance with the following guidance:

- European Commission (2018) Managing Natura 2000 sites. The provisions of Article 6 of the HD 92/43/EEC Commission notice.
- Office of Planning Regulator (2021) Practice Note PN01 AA screening for development management.
- Department of Environment, Housing and Local Government (2009) AA of plans and projects in Ireland guidance for planning authorities (Revised 2010).
- European Commission (2021) Assessment of plans and projects in relation to Natura 2000 sites – methodological guidance on Article 6(3) and (4) of the HD 92/43/EEC Commission notice.
- Habitats Directive (Council Directive 92/43/EEC) 1992.
- Birds Directive (Directive 79/409/EEC) 1979, amended Directive 2009/147/EC.
- European Communities (Birds and Natural Habitats) Regulations 2011-2021
- Department of Arts, Heritage and the Gaeltacht – National Parks and Wildlife Service (DAHG - NPWS) (2012) Marine NIS in Ireland Special Areas of Conservation, a working document.
- Inland Fisheries Ireland (IFI) Guidance Notes for AA Screenings in the Vicinity of Watercourses. •
- Inland Fisheries Ireland (IFI) (2021) Guidance Notes for Natura Impact Statements (NIS) in the Vicinity of Watercourses.

This assessment includes a desk-based review of available records of protected QIs and SCIs including the following sources:

- Conservation status assessment reports, backing documents and maps prepared to inform national reporting required under Article 17 of the HD.
- Site synopsis, conservation objective reports and Natura 2000 forms available from NPWS.

- Published and unpublished NPWS reports on protected habitats and species including Irish Wildlife Manual reports, species action plans and conservation management plans.
- Existing relevant mapping and databases *e.g.* water body status, species and habitat distribution, *etc.* (sourced from the Environmental Protection Agency (EPA) - <http://gis.epa.ie/>, the National Biodiversity Data Centre (NBDC) - <http://maps.biodiversityireland.ie> and the NPWS - <http://www.npws.ie/mapsanddata/>).
- Birdwatch Ireland and the National Parks and Wildlife Service website was accessed for information about SCIs in the relevant SPAs ([https://irishwetlandbirdsurvey.ie](https://irishwetlandbirdssurvey.ie)).

3. Stages of Appropriate Assessment

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (commonly known as the Habitats Directive) is the European Community legislation based on nature conservation established to ensure biodiversity is conserved through the conservation of natural habitats, wild fauna and flora in Europe. A network of sites of conservation importance hosting habitats and species as needing to be either maintained at or, where appropriate, restored to favourable conservation status have been selected as a Special Area of Conservation (SAC) and Special Protection Area (SPA), which are collectively referred to in Ireland as European sites. Together these comprise the Natura 2000 network of protected sites (OPR, 2021). The specific named habitat and/or non-bird species for which an SAC is selected are called 'Qualifying Interests' (QI) of the site while specific named bird species for which an SPA is selected are called 'Special Conservation Interest' (SCIs) of the site (OPR, 2021). In this report, QIs and SCIs are collectively referred to as 'conservation features'.

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 revoked and replaced by the European Communities (Birds and Natural Habitats) Regulations 2011, as amended (herein referred to as the 2011 Birds and Natural Habitats Regulations). The Habitats (92/43/EEC) and Birds (2009/147/EC codified directive) Directives were transposed into the Irish legislation by Part XAB of the 2000 Act and the Birds and Natural Habitats Regulations 2011. The legislative provisions for AA Screening for planning applications are set out in Section 177U of the 2000 Act.

Articles 6(3) and Article 6(4) of the Habitats Directive outlines the decision-making procedures for considering plans and projects that may have a significant effect on a Natura 2000 site. The Department of the Environment Heritage and Local Government guidelines (DEHLG, 2009, reviewed in 2010) promotes a four-stage process (**Figure 3-1**) to complete the AA and outlines the issues and tests at each stage. Stage 1 and Stage 2 encompass the main requirements for assessment under Article 6(3) of the Habitats Directive. Stage 3 may be part of the Article 6(3) Assessment or may be a necessary precursor to Stage 4. Stage 4 is the main derogation step of Article 6(4). An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.



Figure 3-1: Four stages of the AA process.

3.1. Stage 1: Screening for Appropriate Assessment

Stage 1 Screening for Appropriate Assessment determines whether the Project, either alone or in combination with other plans or projects, is likely to have a significant effect on a European site in view of the site's Conservation Objectives. The assessment considers whether a credible source pathway receptor linkage exists between the Project and the Qualifying Interests or Special Conservation Interests of a European site and whether the resulting potential effect could be significant.

Likely significant effects may only be excluded where this conclusion can be reached on the basis of objective scientific information and without reliance on mitigation measures. Where likely significant effects cannot be excluded, including where reasonable scientific uncertainty remains regarding the potential for such effects, the relevant European site and conservation feature are brought forward to Stage 2 Appropriate Assessment.

The Stage 1 assessment does not determine whether the Project would adversely affect the integrity of a European site. That assessment is undertaken at Stage 2 in view of the site's Conservation Objectives.

3.2. Stage 2: Appropriate Assessment

Where likely significant effects cannot be excluded at Stage 1, the relevant European site and conservation features are subject to Appropriate Assessment. At this stage, the implications of the Project, either alone or in combination with other plans or projects, are assessed in view of the site's Conservation Objectives.

A Natura Impact Statement (NIS) provides the scientific information required to inform the competent authority in undertaking the Appropriate Assessment. The assessment considers the characteristics of the Project, the relevant impact pathways, the sensitivity of the affected conservation features, the applicable Conservation Objectives and their attributes and targets, and any mitigation measures relied upon to avoid or reduce adverse effects.

The Stage 2 assessment must establish whether adverse effects on the integrity of the European site can be excluded in view of its Conservation Objectives. Where adverse effects on site integrity cannot be excluded on the basis of complete, precise and definitive scientific findings and conclusions, consent cannot be granted under Article 6(3) of the Habitats Directive and consideration of the subsequent provisions of Article 6(4) would be required where applicable.

3.3. Alternative Solutions

This stage examines any alternative solutions or options that could enable the plan or project to proceed without adverse effects on the integrity of a European site. The process must return to Stage 2, as any alternative proposal must be subject to a Stage 2 AA before it can be subject to the Article 6(4) test. If it can be demonstrated that all reasonable alternatives have been considered and addressed, the AA progresses to Stage 4.

3.4. Imperative Reasons for Overriding Public Interest

Stage 4 is the main derogation process of Article 6(4) which examines whether there are imperative reasons for overriding public interest (IROPI) for allowing a plan or project that will have adverse effects on the integrity of a European site. The extra protection measures for Annex I priority habitats comes into effect when making the IROPI case. Compensatory measures must be proposed and assessed. The European Commission must be informed of the compensatory measures. Compensatory measures must be practical, implementable, likely to succeed, proportionate, and enforceable.

4. Screening Stage

4.1. Description of the Project

4.1.1. Overview

The Project relates to the licensing by Inland Fisheries Ireland (IFI) of native oyster (*Ostrea edulis*) dredging within defined fishing areas in Tralee Bay, Co. Kerry. As part of its statutory functions, IFI issues licences to certain native oyster fishers permitting the harvesting of native oysters by dredging within specified fishing areas. Tralee Bay is one of the areas in Ireland included within the wider IFI native oyster dredging licensing programme.

IFI is reviewing and reissuing licences for native oyster dredging and has identified a requirement for a specific Native Oyster Dredging Impact Study to provide the technical evidence necessary to inform the Appropriate Assessment process. The purpose of the assessment is to determine whether the licensed dredging activity could result in significant effects on relevant European sites and their protected habitats and species, and to identify Fisheries Management Measures, where required, to ensure that relevant conservation objectives are not compromised.

4.1.2. General Location

Tralee Bay is a large, shallow coastal embayment on the southwest coast of Ireland in County Kerry. The bay extends westwards from Tralee town and the estuary of the River Lee and is bounded by Kerry Head to the north and the northern coast of the Dingle Peninsula to the south. Fenit is located on the northern shore of the inner bay, while Castlegregory and the Magharees Peninsula are situated along its southern and western margins. The proposed native oyster dredging areas comprise grounds within Inner Tralee Bay, between Fenit and Spa (10.873 km²), and Outer Tralee Bay, off Castlegregory (14.996 km²) (**Figure 4-1**). The proposed dredging areas occur within the wider Tralee Bay and Magharees Peninsula, West to Cloghane coastal system.

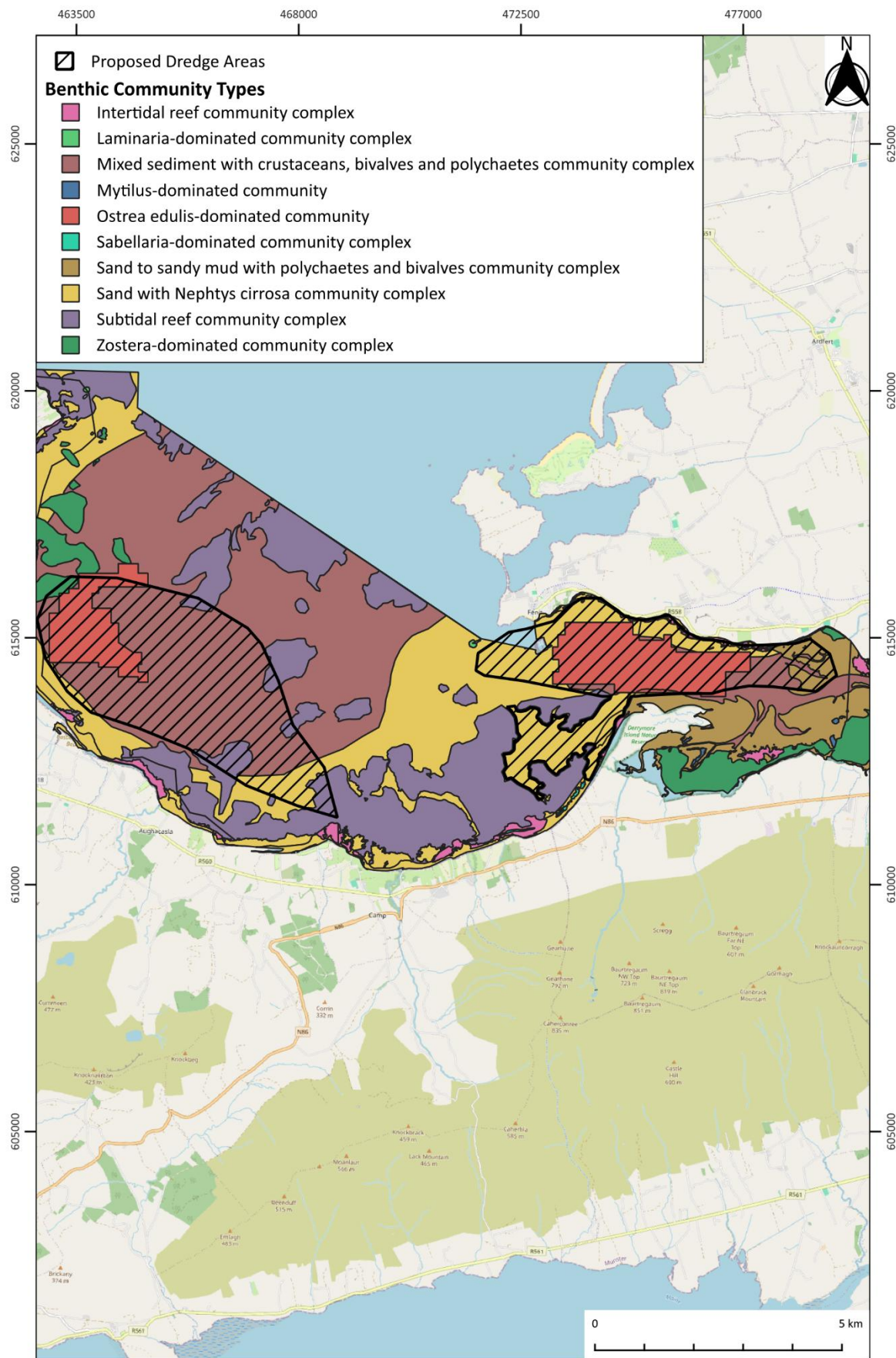


Figure 4-1: Proposed dredging areas for Inner and Outer Tralee Bay and associated benthic habitat types (NPWS, 2025).

Table 4-1 and **Table 4-2** show the area and percentage cover of mapped benthic community types within the proposed dredge areas in Tralee Bay. Areas were calculated from the spatial intersection of each proposed dredge area with mapped benthic community polygons (NPWS, 2025). Percentage cover represents the proportion of the respective proposed dredge areas occupied by each mapped community type. The total proposed dredge area in Outer Tralee Bay is 14,996,187 m² (14.996 km²) and 10,872,525 m² (10.872 km²) in Inner Tralee Bay.

Table 4-1: Area and percentage of the proposed dredge areas in Outer Tralee occupied by each mapped benthic community type.

Benthic Community Type	Area (km ²)	Percentage covered (%)
Sand with <i>Nephtys cirrosa</i> community complex	0.96	6.4
<i>Zostera</i> dominated community complex	0.011	0.7
<i>Ostrea edulis</i> dominated community	2.28	15.2
Mixed sediment with crustaceans, bivalves and polychaetes community complex	10.59	70.6
Subtidal reef community complex	1.05	7.0

The proposed dredge area in Outer Tralee Bay is predominantly associated with the Mixed sediment with crustaceans, bivalves and polychaetes community complex, which accounts for approximately 70.6% of the proposed dredging area. The *Ostrea edulis* dominated community represents approximately 15.2% of the proposed dredge area in Outer Tralee Bay, while the Subtidal reef community complex and Sand with *Nephtys cirrosa* community complex account for approximately 7.0% and 6.4% of that area, respectively. *Zostera* dominated community complex occupies a comparatively small proportion of the proposed dredge area (~ 0.7%). Similarly, Subtidal reef community complex occupies a comparatively small amount of the proposed dredge area in Outer Tralee Bay (0.4%).

Table 4-2: Area and percentage of the proposed dredging area in Inner Tralee occupied by each mapped benthic community type.

Benthic Community Type	Area (km ²)	Percentage Covered (%)
Sand with <i>Nephtys cirrosa</i> community complex	4.79	44.10
<i>Ostrea edulis</i> -dominated community	3.93	36.18
Mixed sediment with crustaceans, bivalves and polychaetes community complex	0.9998	9.20

Benthic Community Type	Area (km ²)	Percentage Covered (%)
Sand to sandy mud with polychaetes and bivalves community complex	0.73	6.68
Intertidal reef community complex	0.12	1.15
Subtidal reef community complex	0.04	0.34
<i>Mytilus</i> -dominated community	0.0011	<0.1

The proposed dredge area in Inner Tralee Bay has a substantially greater proportional overlap with the *Ostrea edulis* dominated community, which accounts for approximately 36.18% of the proposed dredging area. The Sand with *Nephtys cirrosa* community complex represents approximately 44.10%, while the Mixed sediment with crustaceans, bivalves and polychaetes community complex and Sand to sandy mud with polychaetes and bivalves community complex account for approximately 9.2% and 6.68%, respectively. Smaller areas of Intertidal reef community complex (1.15%), Subtidal reef community complex (0.34%) and *Mytilus* dominated community (<0.1%) also occur within the proposed dredging area.

4.1.3. Site Access

Access to the licensed fishing areas is provided by sea using the existing Tralee Bay native oyster fishing fleet. The fleet operates from Fenit Harbour, approximately 10 km west of Tralee, where existing pier, slipway, mooring and harbour facilities are available. During the fishing season, vessels depart from Fenit Harbour and travel to the authorised oyster fishing grounds in the inner and outer areas of Tralee Bay. Following completion of fishing activities, the vessels return to Fenit Harbour. The Project involves the continuation of an established fishery and does not require the construction of new access routes, vessel launching facilities or land-based infrastructure.

4.1.4. Works Duration

Tralee Oyster Fisheries Society Limited exclusive rights to deposit, propagate, dredge, fish for and take oysters within the area defined by the Order and to maintain and regulate the oyster beds. Commercial fishing is undertaken during a September to April (inclusive) season and is informed by annual Marine Institute stock surveys, catch controls, and supplemented by local experience and historical knowledge of the fishery, as determined by the Society on an annual basis.

4.1.5. Works Description

The fishery is managed by the Tralee Oyster Fisheries Society under the Oyster Fishery Order (Brandon Bay, Tralee Bay and Ballyheige Bay), 1981. Between 78 and 79 dredge licences were issued annually for Tralee Bay between 2011 and 2026, with 79 licences issued in 2026. Commercial dredging is undertaken using a nominal

four foot dredge, equivalent to approximately 1.22 m. The fishery operates between September and April each year and is subject to an annual Total Allowable Catch set by the Tralee Oyster Fisheries Society with reference to the Marine Institute stock assessment, together with local experience and historic knowledge of the fishery. The statutory Minimum Landing Size for native oyster is 76 mm. A voluntary Minimum Landing Size of 78 mm is additionally applied by the Tralee Oyster Fisheries Society.

4.2. Assessment Methodology: Source-Pathway-Receptor

The assessment of impact mechanisms considers all relevant aspects of the Project that have potential direct or indirect effects on conservation features. In order to establish the Zone of Influence (Zol) of the Project, the assessment of likely significant effects will be based on the Source-Pathway-Receptor (S-P-R) Model (OPR, 2021):

- Source - Identification of the characteristics of the Project based on the nature, size, location and type of impacts.
- Pathway – Identification of pathways that could link European sites and their conservation features to the Project.
- Receptor – Identification of the location, nature and sensitivities of the conservation features and the ecological conditions supporting their survival and the conservation objectives specified to maintain or restore favourable conservation status.

To establish the Zol of the project, the assessment of connectivity between impact mechanisms (sources) and conservation features (i.e., the QIs of SACs and SCIs of SPAs) considers the location of the project relative to designated habitats and non-mobile species, species' foraging ranges and migration routes, proximity to foraging and breeding areas, potential behavioural responses to disturbance, hydrological connectivity with conservation features, and indirect effects on prey species that could alter ecological interactions.

To inform the screening exercise, available data on protected habitats and species were mapped and interrogated in GIS to identify potential S-P-R connections. Sources (impact mechanisms), pathways (hydrological, physical or ecological connectivity), and receptors (conservation features) were identified with reference to ecological surveys undertaken in the area. Where no ecological pathway or functional link exists between the project and the conservation features of a European site, there is no potential for likely significant effects, and those features can be screened out.

Section 4.5 considers the likely significant effects from the impact mechanisms from the Project alone, while **Section 4.6** considers potential in-combination effects with other plans or projects.

The source comprises the activities associated with commercial native oyster dredging that could generate environmental pressures. These include vessel operation, the deployment and towing of oyster dredges, direct contact between the dredge and the seabed, the capture and removal of oysters and associated fauna, and the handling and movement of catch, vessels or fishing equipment. The nature, scale, location, timing,

duration and frequency of these activities were considered in accordance with the approach set out in the OPR (2021) and IFI (2021) guidance.

The assessment used the proposed dredging areas as the maximum area within which direct interaction could occur. Spatial overlap was treated as evidence of a credible source pathway receptor relationship. Where the available information was insufficient to exclude a significant effect on the basis of objective scientific information, the relevant receptor was retained for Stage 2 Appropriate Assessment.

The pathways considered included direct spatial overlap and physical contact with seabed habitats, the waterborne transport and subsequent deposition of suspended sediment, underwater noise and vessel presence and changes in prey availability or supporting habitat. Potential effects associated with these pathways included physical disturbance of benthic habitats and communities, sediment resuspension and smothering, removal or injury of associated fauna, and disturbance or displacement of species using the dredging area for foraging, resting or movement.

The receptors were the qualifying interests and special conservation interests for which the European sites under consideration are designated. These included relevant Annex I marine habitats and designated bird and mammal species. Mapped benthic community types, including *Ostrea edulis* dominated communities and *Zostera*, *Sabellaria* or *Mytilus* dominated communities, were considered where they form ecological components of a qualifying habitat and are identified in the site specific conservation objectives.

4.3. Identification of Potential Impact Mechanisms

4.3.1. Physical habitat disturbance

Native oyster dredging causes a direct physical pressure on the seabed through contact and movement of the dredge across the oyster grounds. Commercial dredging in Tralee Bay is undertaken using a nominal four foot dredge, equivalent to approximately 1.22 m in width. Passage of the gear may result in abrasion and penetration of the surface sediment (~ 2 cm deep), the formation of dredge tracks, displacement of shell and other seabed material, and overturning or damage to living oysters and associated benthic organisms. Physical disturbance may also alter the local structure and complexity of the oyster bed where shell and cultch are broken, displaced or redistributed. The pressure occurs directly along the path of the dredge and may recur where established oyster grounds are fished over successive seasons (Tully & Clarke, 2012; Kennon et al., 2023).

Living oysters and accumulated shell provide hard settlement surfaces, vertical relief and small-scale structural complexity within otherwise sedimentary habitats. Dredge contact may damage or displace living oysters, break or redistribute shell and cultch, and disturb associated epifauna and infauna. These effects are relevant to the *Ostrea edulis* dominated community identified within the Conservation Objectives for Tralee Bay and Magharees Peninsula, West to Cloghane SAC. The proposed dredging areas extend across approximately 10.873 km² in Inner Tralee Bay and 14.996 km² in Outer Tralee Bay. Approximately 36.18% of the Inner Tralee Bay licensed area and 15.2% of the Outer Tralee Bay proposed dredge area overlap the mapped *O. edulis* dominated community, establishing a direct spatial pathway between the authorised dredging activity and this ecological receptor.

The ecological response to physical disturbance is dependent on the sensitivity and recovery potential of the receiving habitat. Evidence from the rotationally managed Loch Ryan oyster fishery identified differences in shell density, shell cover and macrofaunal biodiversity between areas fished one, two and six years previously. Modelling indicated that biodiversity recovery may extend over approximately ten years, although this was not a directly measured recovery trajectory and is not considered a site-specific estimate for Tralee Bay. The findings indicate that effects on oyster-bed structure and associated biodiversity may persist for several years where physical recovery remains incomplete between fishing events (Kennon et al., 2023).

The magnitude of physical disturbance is influenced by dredge width and weight, the presence and spacing of teeth or blades, tow speed, vessel power, the number of passes over an area and the proportion of the seabed swept. The response of the receiving habitat is influenced by sediment type, hydrodynamic exposure, existing shell density, seabed complexity and the presence of sensitive or habitat forming species. Experimental

evidence indicated that the physical structure of clean sand could be restored within days to a few months, while restoration of muddy sand could take several months or more than one year. Following experimental intertidal dredging, recovery of annelid and mollusc abundance was projected to occur after approximately 98 to 109 days in sand. Equivalent recovery estimates for fauna in muddy sand ranged from approximately 870 to 1,210 days, although these longer estimates were extrapolated beyond the 540 day monitoring period and were therefore uncertain. A meta-analysis predicted that benthic community abundance following towed dredging could take three years or longer to recover and that species richness in biogenic habitats would not recover within three years, irrespective of gear penetration depth (Sciberras et al., 2018). The same dredging intensity may therefore produce materially different effects in different receiving environments.

4.3.2. Increased suspended sediments and smothering

Dredging across the seabed may disturb and resuspend unconsolidated sediment. Suspended material may be dispersed by tidal currents and subsequently deposited within or beyond the dredge track. A hydrological pathway therefore exists between the area disturbed including oyster grounds and nearby benthic habitats in Tralee Bay.

Deposited sediment may cover living organisms, bury oyster shell or other suitable settlement surface, smother recently settled spat (less resilient) or other associated sensitive benthic fauna. Temporary increases in suspended sediment and turbidity may interfere with feeding, respiration, or light availability. The consequence depends on the quantity and particle size of the sediment, the thickness and duration of deposition and the life stage and sensitivity of the receptor. Native oyster is sensitive to sustained deposition, while burial of shell may reduce the availability of clean, stable substrate for larval settlement (Berghahn & Ruth, 2005; Bromley et al., 2016).

The sedimentary communities overlapping the proposed dredging areas are spatially variable. The Mixed sediment with crustaceans, bivalves and polychaetes community complex, which forms a substantial proportion of the Outer Tralee Bay proposed dredge area, is predominantly characterised by mixed to coarse sediment, although fine sand may form a substantial component locally. Silt and clay generally account for less than 8%, with higher proportions recorded at some sheltered locations. The Sand with *Nephtys cirrosa* community complex is principally characterised by fine and very fine sand, with silt and clay generally comprising less than 3%, although locally higher proportions have been recorded. Within parts of Inner Tralee Bay, the Sand to sandy mud with polychaetes and bivalves community complex contains higher proportions of silt and clay.

These sediment characteristics indicate that the behaviour of material disturbed by dredging is likely to vary spatially. Coarser sand would generally be expected to settle more rapidly and closer to the area of

disturbance, while finer sand, silt and clay may remain in suspension for longer and may be transported further before deposition. The tidal character of Tralee Bay will influence sediment transport and dispersal.

4.3.3. Impacts on benthic community structure

Commercial native oyster dredging may affect the native oyster population and benthic community structure through several related biological and ecological pathways. These pathways are considered separately within the Native Oyster Dredging Impact Study because their mechanisms, sensitivity and recovery characteristics differ. For the purposes of this Appropriate Assessment Screening, they are considered collectively under this impact mechanism because they converge on the condition and ecological functioning of the *Ostrea edulis* dominated community and other constituent benthic communities of the relevant Qualifying Interest habitats. The individual pathways comprise the removal of retained native oysters, incidental injury or mortality of undersized oysters and spat, removal or displacement of associated benthic fauna, changes in shell and cultch availability and consequent effects on native oyster recruitment.

Oyster dredging may alter benthic community structure through the direct removal of native oysters and the incidental capture, injury, mortality or displacement of non-target organisms. Organisms attached to living oysters or shell, together with surface living and shallow burrowing fauna contacted by the dredge, may be removed from or redistributed within the fishing ground. Large, sessile, fragile or long lived organisms may be more sensitive to repeated mechanical disturbance than mobile or rapidly recovering taxa.

Oyster dredging is poorly size selective because oysters occur in aggregations and may be attached to dead shell or to one another. The catch may therefore include oysters below the Minimum Landing Size and recently settled spat. Undersized oysters are returned to the seabed, although individuals may be damaged during dredging, sorting or separation. Spat attached to retained oysters may also be removed when the larger oyster is landed.

Commercial harvesting permanently removes retained oysters from the population and primarily targets the larger component of the stock. Sustained removal may affect living oyster abundance, biomass and population size structure. As larger oysters make an important contribution to spawning stock biomass, removal may also affect reproductive output, the spatial distribution of reproductive individuals and subsequent recruitment. The population level effect depends on whether recruitment and growth replace harvested oysters and maintain the abundance and size structure of the stock between successive fishing seasons (Kennedy and Roberts, 2006; Guy et al., 2019).

Living oysters, dead shell and cultch also provide settlement surfaces and contribute to the structural complexity of native oyster habitat. Removal, breakage or redistribution of shell and cultch may reduce the

availability of suitable settlement substrate and alter small scale habitat structure. These changes may influence recruitment and the composition of associated benthic assemblages. Physical breakage and displacement of shell arising directly from contact with the dredge are considered under physical habitat disturbance in Section 4.3.1. The ecological consequences of changes in shell and cultch availability for the oyster population and associated benthic community are considered here.

Within Tralee Bay, the principal receptor for these interacting pathways is the *Ostrea edulis* dominated community identified within the site specific Conservation Objectives for Tralee Bay and Magharees Peninsula, West to Cloghane SAC [002070]. This community is identified as a constituent community of Mudflats and sandflats not covered by seawater at low tide [1140] and Large shallow inlets and bays [1160] and is required to be conserved in natural condition. Other sedimentary communities may also be affected where associated benthic fauna are removed, injured or displaced. The screening assessment therefore considers whether these pathways could result in a significant effect on the natural condition, distribution, structure or ecological functioning of the relevant constituent communities.

4.3.4. Effects on prey resources and the trophic food chain

Dredging may alter the abundance, distribution and accessibility of prey through the removal, damage, burial, exposure or redistribution of benthic organisms and the temporary displacement of demersal fish and mobile invertebrates. Tube-building polychaetes and epifaunal organisms may be damaged within dredge tracks, while injury, discards and the exposure of buried fauna may temporarily increase food availability for scavengers. Repeated or extensive disturbance could have the opposite effect by reducing prey density or changing the composition of the benthic assemblage.

Changes in benthic prey may affect SCI waterbirds that feed in intertidal or shallow subtidal habitats, including species that depend on polychaetes, bivalves and other benthic invertebrates. Changes in demersal fish distribution or abundance may also affect fish-eating species.

This pathway varies between Special Conservation Interests according to their feeding ecology and use of habitats within Tralee Bay. The Tralee Bay Complex SPA supporting document identifies a direct association between intertidal and shallow subtidal habitats and a number of benthic-feeding waterbirds. Shelduck feed predominantly within intertidal habitat and utilise benthic invertebrate prey, while Scaup forage in shallow subtidal waters and consume a range of food items including molluscs and crustaceans. Oystercatcher and several other wader species also forage on intertidal mud and sand flats for polychaetes, bivalves and other invertebrates. By contrast, Light-bellied Brent Goose and Wigeon are principally associated with plant food resources including *Zostera* and algae, while Golden Plover and Lapwing forage primarily in terrestrial habitats (NPWS, 2014b)

The proposed dredging areas principally overlap shallow marine benthic communities, including the mapped *Ostrea edulis* dominated community and associated sedimentary communities. NPWS records the *O. edulis* dominated community at depths of between 0 and 8 m and identifies a small indicative component, approximately 4 ha, within Mudflats and sandflats not covered by seawater at low tide [1140]. A potential connection with intertidal food resources cannot therefore be excluded solely on the basis of habitat zonation. However, the mapped areas are interpolated and do not demonstrate that commercial dredging occurs throughout the intertidal component of the community (NPWS, 2014b).

Otter may also be affected where dredging results in localised changes in the availability of fish, crustaceans or other prey within marine foraging habitat. The relevance of this pathway is assessed separately against the site-specific conservation objective for otter, which includes maintenance of available fish biomass. For fish-eating birds and marine mammals, any trophic pathway would be indirect and would require evidence of a consequential effect of oyster dredging on fish prey.

4.3.5. Above water visual and noise disturbance

Fishing vessel movements and the presence and activity of crew during dredging, sorting and landing may cause visual and above-water noise disturbance to mobile fauna. Potential receptors include seabirds and waterbirds using intertidal and subtidal feeding areas, seals and otter using marine foraging or resting habitat.

Behavioural responses may include alertness, interruption of feeding, temporary avoidance or localised displacement from the immediate vicinity of an operating vessel. Repeated disturbance may reduce access to preferred feeding or resting areas and increase the time or energy required to obtain food. The response will depend on species sensitivity, distance from the activity, existing habituation, vessel speed and approach, the number of vessels operating and the duration and recurrence of disturbance.

Commercial native oyster dredging is undertaken within the defined Inner and Outer Tralee Bay proposed dredging areas. Between 78 and 79 oyster dredge licences have been issued annually in Tralee Bay over the past decade, with 79 licences issued in 2026. These figures represent the number of licences issued and do not indicate the number of vessels operating within the Bay at any one time. Vessel activity associated with the Project will be spatially concentrated within the defined dredging areas and associated transit routes and will occur during the authorised fishing season from 1 September to 30 April. This period overlaps with the principal wintering period for a number of the Special Conservation Interest species of Tralee Bay Complex SPA. Vessel presence and dredging activity may therefore result in temporary above water visual and noise disturbance where birds are using feeding, resting or roosting habitat within or adjacent to areas of vessel activity.

4.3.6. Underwater noise disturbance

Underwater sound associated with the Project will arise from the operation and movement of fishing vessels and from mechanical interaction between the oyster dredge and the seabed during active dredging. Potential effects relevant to sensitive mobile fauna are therefore associated with operational vessel and dredging sound and the potential for temporary behavioural disturbance or displacement where animals occur within or adjacent to the active fishing areas.

No project specific underwater sound measurements or modelling are available for the Tralee Bay native oyster fishery. The magnitude and spatial extent of underwater sound generated during dredging cannot therefore be quantified from the available information. Accordingly, underwater noise is retained as a potential impact pathway where a relevant Qualifying Interest may occur within Tralee Bay and functional connectivity with a European site cannot be excluded. Where such connectivity is identified, likely significant effects are not excluded on the basis of underwater noise magnitude at the screening stage, and the receptor is brought forward to Stage 2 Appropriate Assessment.

4.4. European sites in the Zol

The Zol was defined based on the spatial extent over which the commercial native oyster dredging could reasonably result in effects, namely in the immediate footprint and the localised area of seabed disturbance and sediment suspension associated with the dredging activity. These factors informed a precautionary delineation of the Zol, taking into account that all relevant Natura 2000 sites and receptors with a reasonable likelihood of interaction were included in the screening and subsequent impact assessment. **Table 4-6** and **Table 4-7** below shows the conservation features for which the European sites are designated, their conservation objectives and the distance of the SAC(s) and SPA(s) to the Project. All site synopsis and conservation objectives for the European sites can be accessed through the NPWS website (<https://www.npws.ie/protected-sites>).

A map of all SACs and SPAs within the Zol of the Project can be seen below in **Figure 4-2** and **Figure 4-3** respectively.

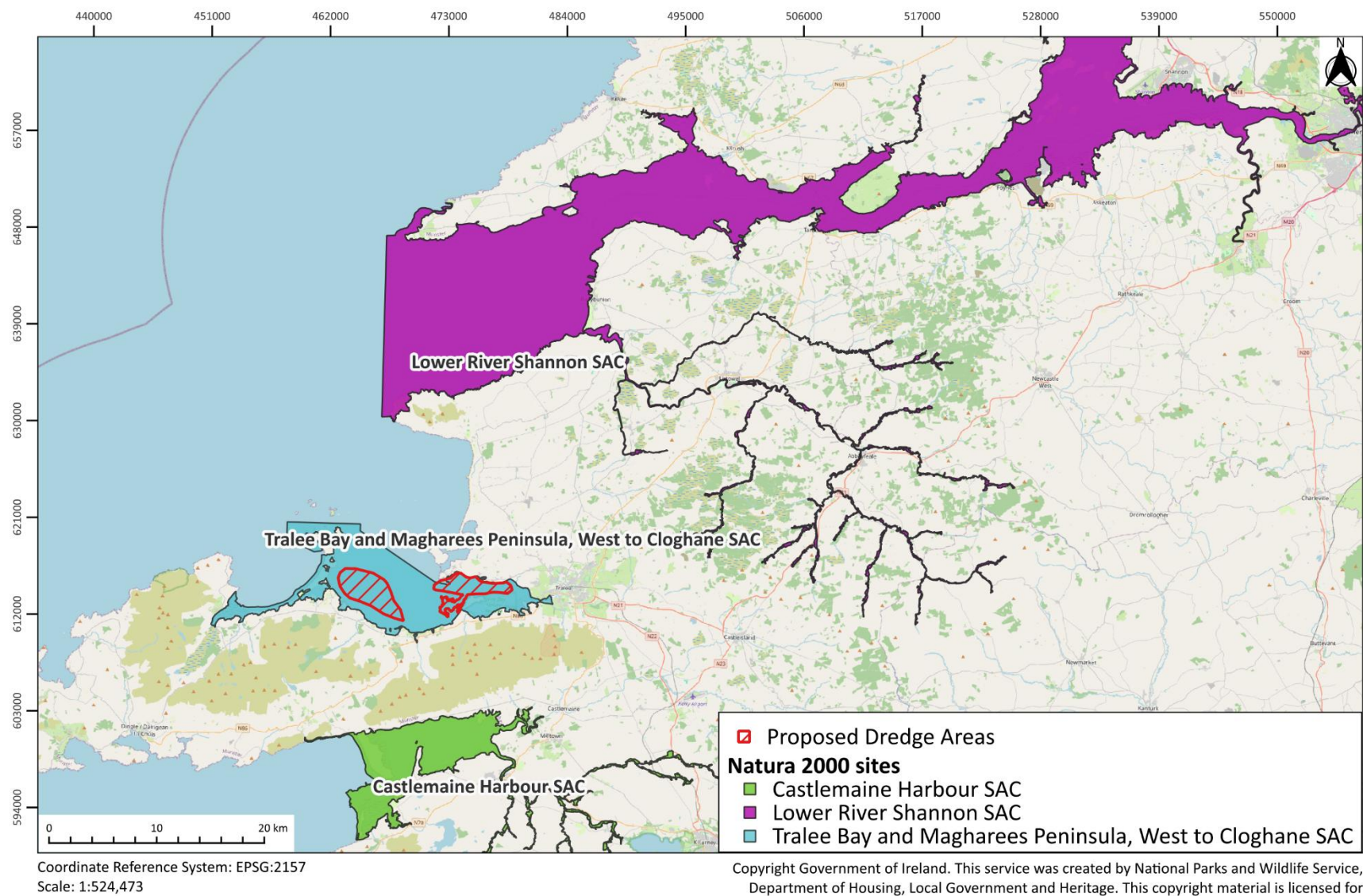


Figure 4-2 SACs within the Zone of Influence (Zol) of the Project.

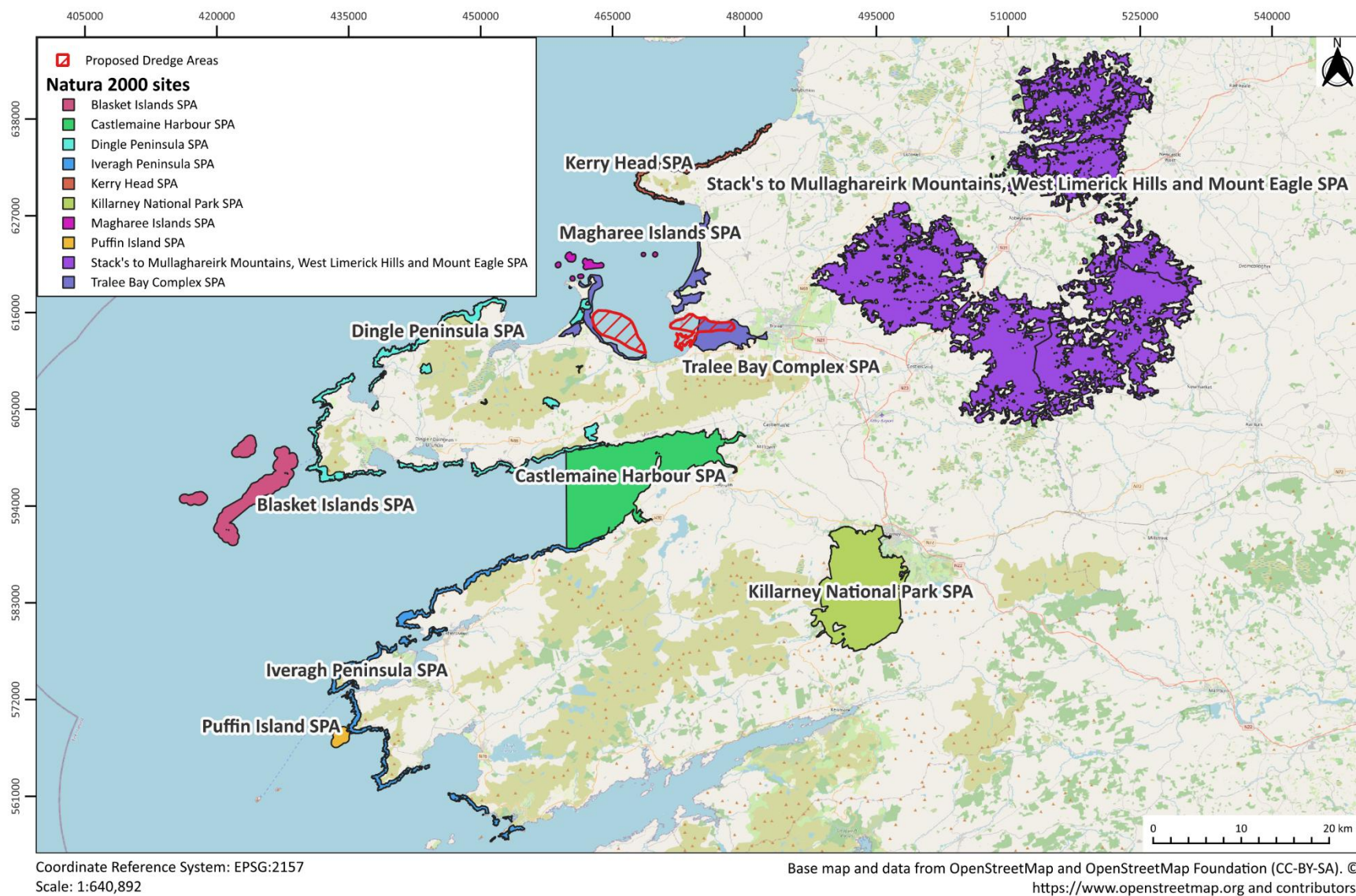


Figure 4-3: SPAs in the one of Influence (Zol) of the Project.

4.4.1. Special Areas of Conservation (SAC)

In accordance with Article 6(3) of the Habitats Directive, this assessment considers whether the Project, comprising licensed native oyster dredging within the proposed Tralee Bay dredging areas, either alone or in combination with other plans or projects, is likely to have a significant effect on any Special Area of Conservation within the identified Zone of Influence in view of the site's conservation objectives. The Qualifying Interests and site-specific conservation objectives of each relevant SAC have been reviewed to determine whether a credible source pathway receptor relationship exists and whether likely significant effects can be excluded on the basis of objective scientific information. Where likely significant effects cannot be excluded, the relevant Qualifying Interest is brought forward to Stage 2 Appropriate Assessment.

The nearest SAC within the Zol of the proposed works is Tralee Bay and Magharees Peninsula, West to Cloghane SAC [002070].

Tralee Bay and Magharees Peninsula, West to Cloghane SAC QIs:

- Estuaries [1130]
- Mudflats and sandflats not covered by seawater at low tide [1140]
- Coastal lagoons [1150]
- Large shallow inlets and bays [1160]
- Reefs [1170]
- Annual vegetation of drift lines [1210]
- Perennial vegetation of stony banks [1220]
- Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]
- Salicornia and other annuals colonising mud and sand [1310]
- Atlantic salt meadows (*Glauco-Puccinellietalia maritima*) [1330]
- Mediterranean salt meadows (*Juncetalia maritimi*) [1410]
- Embryonic shifting dunes [2110]
- Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]
- Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]
- Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*) [2170]
- Humid dune slacks [2190]
- *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) [91E0]

-
- *Lutra lutra* (Otter) [1355]
 - *Petalophyllum ralfsii* (Petalwort) [1395]

A list of relevant SACs within the immediate vicinity of the Project and their QIs can be found in **Table 4-3**.

Table 4-3: Qualifying Interests (QIs) for SACs in the Zone of Influence (Zoi) of the Project.

Distance from Project (km)	Qualifying Interest	Ecological Group	Conservation objectives
Tralee Bay and Magharees Peninsula, West to Cloghane SAC [002070]			
0 km	Estuaries [1130]	Marine habitat	To maintain the favourable conservation condition
	Mudflats and sandflats not covered by seawater at low tide [1140]	Marine habitat	To maintain the favourable conservation condition
	Coastal lagoons [1150]	Marine habitat	To restore the favourable conservation condition
	Large shallow inlets and bays [1160]	Marine habitat	To maintain the favourable conservation condition
	Reefs [1170]	Marine habitat	To maintain the favourable conservation condition
	Annual vegetation of drift lines [1210]	Coastal habitat	To restore the favourable conservation condition
	Perennial vegetation of stony banks [1220]	Coastal habitat	To maintain the favourable conservation condition
	Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	Coastal habitat	To maintain the favourable conservation condition
	<i>Salicornia</i> and other annuals colonising mud and sand [1310]	Coastal habitat	To maintain the favourable conservation condition
	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330]	Coastal habitat	To maintain the favourable conservation condition
	Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	Coastal habitat	To maintain the favourable conservation condition
	Embryonic shifting dunes [2110]	Coastal habitat	To restore the favourable conservation condition
	Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]	Coastal habitat	To restore the favourable conservation condition
	Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	Coastal habitat	To restore the favourable conservation condition
	Dunes with <i>Salix repens ssp. argentea</i> (<i>Salicion arenariae</i>) [2170]	Coastal habitat	To maintain the favourable conservation condition
	Humid dune slacks [2190]	Coastal habitat	To restore the favourable conservation condition
	<i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410]	Grassland habitat	To maintain the favourable conservation condition
	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	Woodland habitat	To restore the favourable conservation condition
	<i>Lutra lutra</i> (Otter) [1355]	Mammal	To restore the favourable conservation condition
	<i>Petalophyllum ralfsii</i> (Petalwort) [1395]	Bryophyte	To restore the favourable conservation condition
Castlemaine Harbour SAC [000343]			
12.5 km	Estuaries [1130]	Marine habitat	To maintain the favourable conservation condition
	Mudflats and sandflats not covered by seawater at low tide [1140]	Marine habitat	To maintain the favourable conservation condition
	Annual vegetation of drift lines [1210]	Coastal habitat	To maintain the favourable conservation condition

Distance from Project (km)	Qualifying Interest	Ecological Group	Conservation objectives
	Perennial vegetation of stony banks [1220]	Coastal habitat	To maintain the favourable conservation condition
	Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	Coastal habitat	To restore the favourable conservation condition
	Salicornia and other annuals colonising mud and sand [1310]	Coastal habitat	To maintain the favourable conservation condition
	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]	Coastal habitat	To maintain the favourable conservation condition
	Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	Coastal habitat	To maintain the favourable conservation condition
	Embryonic shifting dunes [2110]	Coastal habitat	To maintain the favourable conservation condition
	Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]	Coastal habitat	To maintain the favourable conservation condition
	Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	Coastal habitat	To restore the favourable conservation condition
	Dunes with <i>Salix repens ssp. argentea</i> (<i>Salicion arenariae</i>) [2170]	Coastal habitat	To maintain the favourable conservation condition
	Humid dune slacks [2190]	Coastal habitat	To maintain the favourable conservation condition
	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) [91E0]	Woodland habitat	To restore the favourable conservation condition
	<i>Petromyzon marinus</i> (Sea Lamprey) [1095]	Diadromous fish	To maintain the favourable conservation condition
	<i>Lampetra fluviatilis</i> (River Lamprey) [1099]	Diadromous fish	To maintain the favourable conservation condition
	<i>Salmo salar</i> (Salmon) [1106]	Diadromous fish	To maintain the favourable conservation condition
	<i>Lutra lutra</i> (Otter) [1355]	Mammal	To restore the favourable conservation condition
	<i>Petalophyllum ralfsii</i> (Petalwort) [1395]	Bryophyte	To maintain the favourable conservation condition
Lower River Shannon SAC [002165]			
15.33 km	Sandbanks which are slightly covered by sea water all the time [1110]	Marine habitat	To maintain the favourable conservation condition
	Estuaries [1130]	Marine habitat	To maintain the favourable conservation condition
	Mudflats and sandflats not covered by seawater at low tide [1140]	Marine habitat	To maintain the favourable conservation condition
	Coastal lagoons [1150]	Marine habitat	To restore the favourable conservation condition
	Large shallow inlets and bays [1160]	Marine habitat	To maintain the favourable conservation condition
	Reefs [1170]	Marine habitat	To maintain the favourable conservation condition
	Perennial vegetation of stony banks [1220]	Coastal habitat	To maintain the favourable conservation condition
	Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	Coastal habitat	To maintain the favourable conservation condition

Distance from Project (km)	Qualifying Interest	Ecological Group	Conservation objectives
	<i>Salicornia</i> and other annuals colonising mud and sand [1310]	Coastal habitat	To maintain the favourable conservation condition
	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]	Coastal habitat	To restore the favourable conservation condition
	Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	Coastal habitat	To restore the favourable conservation condition
	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260]	Freshwater habitat	To maintain the favourable conservation condition
	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410]	Grassland habitat	To maintain the favourable conservation condition
	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	Woodland habitat	To restore the favourable conservation condition
	<i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029]	Freshwater invertebrate	To restore the favourable conservation condition
	<i>Petromyzon marinus</i> (Sea Lamprey) [1095]	Diadromous fish	To restore the favourable conservation condition
	<i>Lampetra planeri</i> (Brook Lamprey) [1096]	Freshwater fish	To maintain the favourable conservation condition
	<i>Lampetra fluviatilis</i> (River Lamprey) [1099]	Diadromous fish	To maintain the favourable conservation condition
	<i>Salmo salar</i> (Salmon) [1106]	Diadromous fish	To restore the favourable conservation condition
	<i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349]	Marine mammal	To maintain the favourable conservation condition
	<i>Lutra lutra</i> (Otter) [1355]	Mammal	To restore the favourable conservation condition

4.4.2. Special Protection Areas (SPA)

In accordance with Article 6(3) of the Habitats Directive, this assessment considers whether the Project, either alone or in combination with other plans or projects, is likely to have a significant effect on any Special Protection Area within the identified Zone of Influence in view of the site's conservation objectives. The Special Conservation Interests and site specific conservation objectives of each relevant SPA have been reviewed with regard to potential disturbance, changes in supporting habitat and prey resources, and other credible ecological pathways associated with the Project. Where likely significant effects cannot be excluded on the basis of objective scientific information, the relevant Special Conservation Interest is brought forward to Stage 2 Appropriate Assessment.

The Nearest SPA within the Zol of the Project is Tralee Bay Complex SPA [004188].

Tralee Bay Complex SPA SCIs:

- Whooper Swan (*Cygnus cygnus*) [A038]
- Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]
- Shelduck (*Tadorna tadorna*) [A048]
- Teal (*Anas crecca*) [A052]
- Mallard (*Anas platyrhynchos*) [A053]
- Pintail (*Anas acuta*) [A054]
- Scaup (*Aythya marila*) [A062]
- Oystercatcher (*Haematopus ostralegus*) [A130]
- Ringed Plover (*Charadrius hiaticula*) [A137]
- Golden Plover (*Pluvialis apricaria*) [A140]
- Grey Plover (*Pluvialis squatarola*) [A141]
- Lapwing (*Vanellus vanellus*) [A142]
- Sanderling (*Calidris alba*) [A144]
- Dunlin (*Calidris alpina*) [A149]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Curlew (*Numenius arquata*) [A160]
- Redshank (*Tringa totanus*) [A162]
- Turnstone (*Arenaria interpres*) [A169]
- Black-headed Gull (*Chroicocephalus ridibundus*) [A179]

- Common Gull (*Larus canus*) [A182]
- Wigeon (*Mareca penelope*) [A855]
- Wetland and Waterbirds [A999]

The analysis also examined ecological pathways for seabird species *ex-situ*. Seabirds that exhibit oceanic, offshore behaviour were not included in the assessment as they are unlikely to be present in Tralee Bay for prolonged periods of time. These include fulmar, gannet, guillemot, kittiwake, puffin, razorbill, and storm petrel and have been verified by analysing I-WeBS data for the Tralee Bay area. This element of the screening process was informed by published data on species-specific mean foraging ranges (Thaxter *et al.*, 2012; Jovani *et al.*, 2016; Wakefield *et al.*, 2017; Woodward *et al.*, 2019; Woodward *et al.*, 2024) in **Table 4-4**. Due to the coastal nature of the Project, coastal seabirds, waterbirds, and waders are most likely to be present and have potential to be impacted by impact mechanisms. Only seabird SCIs from SPAs with direct or functional connectivity to the dredging area are taken forward for assessment of likely significant effects.

Table 4-5 shows the foraging ranges for terrestrial and wader birds used in the screening assessment.

The SCIs for all SPAs within the ZOI can be seen below in **Table 4-6** which also contains their site-specific conservation objectives.

The temporal relationship between the Project and the ecological use of each SPA was considered before applying species movement or foraging-range information. Commercial native oyster dredging in Tralee Bay is authorised between September and April inclusive and consequently overlaps principally with the non-breeding period for wintering waterbirds. Published seabird foraging ranges presented in Table 4-2 predominantly relate to breeding birds undertaking trips from breeding colonies. These ranges are therefore used only as supporting evidence of potential spatial connectivity where the relevant SCI population is designated as a breeding population and temporal overlap with colony-associated use may occur. For non-breeding SCI populations, connectivity is assessed using seasonally relevant information on site use, distribution and movement where available.

Table 4-4: Review of published seabird foraging ranges during the breeding season, summarised from Thaxter et al. (2012), Jovani et al. (2016), Wakefield et al. (2017) and Woodward et al. (2019). Foraging-range values are used as contextual evidence of potential functional connectivity and are not applied as absolute exclusion distances. Mean values provide an indication of typical foraging movements, while mean maximum and maximum values indicate the potential for wider movements. Connectivity is assessed having regard to distance together with the seasonal status of the SCI population, habitat suitability and available evidence of species use of Tralee Bay. Figures in bold indicate mean foraging ranges used to calculate connectivity with the Project.

Species	Thaxter <i>et al.</i> , 2012		Jovani <i>et al.</i> , 2016	Wakefield <i>et al.</i> , 2017		Woodward <i>et al.</i> , 2019		Woodward <i>et al.</i> , 2024
	Maximum foraging range (km)	Mean foraging range (km)	Foraging range (km)	Maximum foraging range (km)	Mean foraging range (km)	Maximum foraging range (km)	Mean foraging range (km)	Mean site maximum (km)
Arctic tern (<i>Sterna paradisaea</i>) [A194]	30	7.1				46	6.1	40.5 (25.7 ± 14.8)
Black-headed Gull (<i>Larus ridibundus</i>) [A179]	40	11.4				18.5	7	18.5
Common Gull (<i>Larus canus</i>) [A182]	50	25				50	N/A	50
Common Tern (<i>Sterna hirundo</i>) [A193]	30	7.1				30	6.4	26.9 (18 ± 8.9)
Cormorant (<i>Phalacrocorax carbo</i>) [A017]	35	5.2				35	7.1	33.9 (25.6 ± 8.3)
Eider (<i>Somateria mollissima</i>) [A063]	80	2.4				22.5	3.2	21.5
Fulmar (<i>Fulmarus glacialis</i>) [A009]	580	47.5				2736	134.6	1200.2 (542.3 ± 657.9)
Gannet (<i>Morus bassanus</i>) [A016]	590	92.5	709			709	120.4	509.4 (315.2 ± 194.2)
Great Black-backed Gull (<i>Larus marinus</i>) [A187]			60			73	16.7	73
Guillemot (<i>Uria aalge</i>) [A199]	135	37.8		340	10.5	338	33.1	153.7 (73.2 ± 80.5)
Herring Gull (<i>Larus argentatus</i>) [A184]	92	10.5				92	14.9	85.6 (58.8 ± 26.8)
Kittiwake (<i>Rissa tridactyla</i>) [A188]	120	24.8	231	300	11.9	770	54.7	300.6 (156.1 ± 144.5)
Leach's Storm Petrel (<i>Oceanodroma leucorhoa</i>) [A015]	< 120					N/A	657	N/A
Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]	181	71.9				533	43.3	236 (127 ± 109)
Little Tern (<i>Sterna albifrons</i>) [A195]	11	2.1				5	3.5	5

Species	Thaxter <i>et al.</i> , 2012		Jovani <i>et al.</i> , 2016	Wakefield <i>et al.</i> , 2017		Woodward <i>et al.</i> , 2019		Woodward <i>et al.</i> , 2024
	Maximum foraging range (km)	Mean foraging range (km)	Foraging range (km)	Maximum foraging range (km)	Mean foraging range (km)	Maximum foraging range (km)	Mean foraging range (km)	Mean site maximum (km)
Manx Shearwater (<i>Puffinus puffinus</i>) [A013]	330	2.3				2890	136.1	2365.5 (1346.8 ± 1018.7)
Mediterranean Gull (<i>Larus melanocephalus</i>) [A180]	20	11.5				20	11.5	20
Puffin (<i>Fratercula arctica</i>) [A204]	200	4				383	62.4	265.4 (137.1 ± 128.3)
Razorbill (<i>Alca torda</i>) [A200]	95	23.7	312	305	13.2	313	61.3	164.6 (88.7 ± 75.9)
Red-throated Diver (<i>Gavia stellata</i>) [A001]	9	4.5				9	4.5	9
Roseate Tern (<i>Sterna dougallii</i>) [A192]	30	12.2				24	4.1	23.2 (12.6 ± 10.6)
Sandwich Tern (<i>Sterna sandvicensis</i>) [A191]	54	11.5				80	9	57.5 (34.3 ± 23.2)
Shag (<i>Gulosus aristotelis</i>) [A018]	17	5.9		35	3.4	46	9.2	23.7 (13.2 ± 10.5)
Storm-petrel (<i>Hydrobates pelagicus</i>) [A014]	65					336 (468*)	N/A	400.6

Table 4-5: Foraging and commuting distances used to inform screening of non-seabird and non-breeding waterbird SCIs.

Species (SCI code)	Typical foraging/commuting distance used for screening	Notes	Key sources
Whooper Swan (A038)	Core ~5 km; up to ~20 km	Regular roost–field commutes; 5 km “core” widely used in SPA connectivity.	NatureScot SPA Connectivity guidance
Light-bellied Brent Goose (A046)	Typically, 3–10 km (often ≤5 km)	Coastal/estuarine feeders commuting between high-tide roosts and shores/fields.	BSG Ecology collation of literature
Shelduck (A048)	Up to 3 km recorded	Breeding pairs occupying freshwater territories were regularly observed feeding on tidal mud up to 3 km away during incubation. Wintering birds predominantly use estuarine and tidal mudflat habitats.	Hori, 1987 (Hori, J. (1987). Distribution, dispersion and regulation in a population of the Common Shelduck. <i>Wildfowl</i> , 38, 127 to 142.)
Wigeon (A050)	~1–10 km (mean dabblers ≈5 km)	Grazing on eelgrass/saltmarsh and fields near roosts.	Johnson et al. 2014 (mean dabblers 5.1 ± 4.4 km).
Teal (A052)	~1–10 km (often ≤5 km)	Shorter flights where food abundant; site dependent.	Johnson et al. 2014 & Guillemain et al., 2008
Mallard (A053)	Typically, c. 1 km. Mean winter foraging flights 0.5 to 1.3 km. Up to 10km	Telemetry studies of wintering Mallard in France found mean distance across 67 Mallards was approximately 1.0 km. Longer movements have been recorded.	Legagneux et al. (2009). Johnson et al. (2014)
Pintail (A054)	Typically, c. 1 to 2 km. Mean maximum foraging distance of 11.4 km recorded.	Mean roost to foraging distance of 1.3 km for wintering Pintail in France. GPS tracked wintering Pintail in Spain had a mean maximum foraging distance of 11.4 ± 0.6 km between daytime roosting and nocturnal feeding areas	Legagneux et al. (2009). Johnson et al. (2014). Parejo et al. (2019).
Scaup (A062)	Up to approximately 15 km	Benthic feeding diving duck. Baltic studies document movements of approximately 15 km between sheltered roosting waters and marine bivalve feeding grounds.	Marchowski et al. (2015)

Species (SCI code)	Typical foraging/commuting distance used for screening	Notes	Key sources
Oystercatcher (A130)	Core ~7 km, Median 10.4 km	GPS tracking of wintering Oystercatchers on The Wash recorded a mean maximum distance of 5.8 ± 0.14 km from the preceding high tide roost during low tide. Independent GPS tracking recorded feeding sites 0.7 to 7 km from the principal high tide roost, and a median distance of 10.4 km.	Clewley et al. (2021). Morten et al. (2022)
Ringed Plover (A137)	Typically, within estuary/shoreline; ~1–5 km from roosts	Small coastal home ranges; strong roost–flat linkage.	Clausen & Bregnballe 2022, Goodship & Furness 2022
Golden Plover (A140)	Core ~3 km; Maximum 11 km	Regular high-tide roost, inland pasture commutes.	NatureScot 2016; Whittingham et al., 2000.
Grey Plover (A141)	Core ~3 km; Maximum 11 km	Typically, local within an estuary. Maximum unknown, Golden plover range is farther than many waders and therefore used as a precautionary surrogate.	NatureScot 2016; Whittingham et al., 2000.
Lapwing (A142)	Usually ≤ 5 of breeding/nesting locations	Inland field foraging from coastal roosts.	Cevenini et al., 2025
Sanderling (A144)	Core ~5 km; movements between wintering sites generally ≤ 15 km.	In the Tagus Estuary, 93.6% of marked birds remained at one site within a winter and movements between sites more than 15 km apart were rare.	Lourenço et al., 2016
Dunlin (A149)	Majority ≤ 5 km from roost	Densities fall steeply beyond ~5 km from roost.	Dias et al., 2006
Black-tailed Godwit (A156)	Majority ≤ 4 km from roost. Alternative roost movements up to ~15 km documented	Individually marked nonbreeding Bar tailed Godwits showed strong feeding and roost site fidelity, with the majority of feeding records within 4 km of the associated roost.	Coleman and Milton (2012).
Bar-tailed Godwit (A157)	Typically, ≤ 5 –10 km	Largely intertidal forager near coastal roosts.	Clausen & Bregnballe 2022
Curlew (A160)	Often ≤ 5 –10 km	Movements between mudflat foraging and inland fields.	Clausen & Bregnballe 2022, Goodship & Furness 2022
Redshank (A162)	Typically, ≤ 5 km	High site fidelity within estuary sectors.	Clausen & Bregnballe 2022
Turnstone (A169)	Core < 6 km	Rocky shore forager; highly site faithful.	Metcalfe & Furness, 1985

Species (SCI code)	Typical foraging/commuting distance used for screening	Notes	Key sources
Peregrine (A103)	Core range of 2km, with maximum recorded distance in Britain of 18km.	Approximately 70% of prey has been reported as taken within 2 km of breeding sites, supporting a 2 km core foraging range. Hunting movements of approximately 6 km occur regularly enough. Substantially longer movements up to approximately 18 km recorded.	NatureScot 2016; Pendlebury et al. (2011).
Chough (A346)	Typically, ≤ 1 km. Approximately 95% of activity within 1 to 1.3 km. Occasional feeding movements up to 2 to 3 km.	Welsh studies recorded 95% of breeding season foraging flights within 1 km, while southwest Irish research reported 95% of activity within approximately 1.3 km of nests.	Whitehead et al. (2005). Colhoun et al. (2024).
Barnacle Goose (A045)	Commonly 10–15 km; occasionally longer	Primarily forage on terrestrial grasslands; limited use of intertidal.	NatureScot SPA Connectivity guidance ⁸
Common Scoter (A065)	Maximum foraging range approximately 8 km.	Wintering Common Scoter predominantly forage in shallow marine waters associated with suitable benthic prey, particularly bivalves.	Kaiser et al. (2006).
Greenshank (A164)	Core range of 2km, with maximum range of 3km.	Breeding Greenshanks commonly commute between inland nest territories and aquatic feeding areas, with feeding trips of approximately 2 km reported and distances of 1.8 to 3.4 km recorded between nests and estuarine feeding habitat.	NatureScot 2016; Summers et al. (2020)
Hen Harrier (A082)	Core ~ 1 km (breeding); up to ~ 9 km recorded	In forested areas Hen Harriers forage in young plantations, closed canopy forests are generally not used by this species.	Arroyo et al., 2014
Merlin (A098)	Core < 1 km; up to 5 km	Hunts over moorland and bog; no marine link.	SNH Merlin Ecology Notes
Greenland White-fronted Goose (A395)	Core < 5 km; up to 15 km	Moves between roost and feeding fields; highly site faithful.	Schindler et al., 2025

A total of 167 SPAs are designated in the Republic of Ireland; these have been interrogated using QGIS to calculate the approximate distance from the proposed site to each SPA. This was then assessed against seabird species foraging ranges, identified through a literature review, to identify which SPAs are within that SCI's foraging range. For the purpose of this assessment, mean reported foraging ranges have been used, and the values applied are indicated in bold. These represent the mean of the observed distances from all reviewed data and have been selected in line with the principle of proportionality to ensure that the appropriate extent of potential interaction between SPAs and the proposed site are captured in the absence of site-specific tracking data. Breeding colony foraging ranges may vary substantially between colonies, both nationally and internationally. Due to logistical constraints in acquiring colony-specific movement data, assessments often rely on published ranges from literature (Woodward *et al.*, 2024), as is the case in this report. Woodward *et al.* 2024 was reviewed against the 2019 foraging ranges and updated where relevant.

Published foraging ranges were used to inform, rather than determine, functional connectivity. The location of the Project beyond a reported mean foraging range was not considered sufficient, in isolation, to exclude connectivity with a designated SPA population. Screening conclusions also considered the seasonal basis of the SCI, habitat characteristics within the Project area and available evidence of species occurrence and use of Tralee Bay.

To identify viable impact pathways between SPAs and the proposed site, the shortest linear distance from each SPA to the proposed sites were calculated. The SCIs for all SPAs within the ZOI can be seen in **Table 4-6** which also contains their site-specific conservation objectives. All site synopsis and conservation objectives for the European sites can be accessed through the NPWS website.

Table 4-6: Special Protection Areas (SPAs) and their Special Conservation Interests (SCIs) within the ZOI of the proposed Project. Species in bold have functional connectivity between The Project and their respective SPA and require further consideration in the screening assessment.

Special Protection Area [site code]	Distance (km)	Special Conservation Interest	Broad Ecological Group	Conservation Objective
Tralee Bay Complex SPA (site code: 004188)	0	Whooper Swan (<i>Cygnus cygnus</i>) [A038]	Waterfowl	To maintain favourable conservation condition
		Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Waterfowl	To maintain favourable conservation condition
		Shelduck (<i>Tadorna tadorna</i>) [A048]	Waterfowl	To maintain favourable conservation condition
		Wigeon (<i>Mareca penelope</i>) [A855]	Waterfowl	To maintain favourable conservation condition
		Teal (<i>Anas crecca</i>) [A052]	Waterfowl	To maintain favourable conservation condition
		Mallard (<i>Anas platyrhynchos</i>) [A053]	Waterfowl	To maintain favourable conservation condition
		Pintail (<i>Anas acuta</i>) [A054]	Waterfowl	To maintain favourable conservation condition
		Scaup (<i>Aythya marila</i>) [A062]	Waterfowl	To maintain favourable conservation condition
		Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	Wader	To maintain favourable conservation condition
		Ringed Plover (<i>Charadrius hiaticula</i>) [A137]	Wader	To maintain favourable conservation condition
		Golden Plover (<i>Pluvialis apricaria</i>) [A140]	Wader	To maintain favourable conservation condition
		Grey Plover (<i>Pluvialis squatarola</i>) [A141]	Wader	To maintain/restore favourable conservation condition
		Lapwing (<i>Vanellus vanellus</i>) [A142]	Wader	To maintain favourable conservation condition
		Sanderling (<i>Calidris alba</i>) [A144]	Wader	To maintain favourable conservation condition
		Dunlin (<i>Calidris alpina</i>) [A149]	Wader	To maintain favourable conservation condition
		Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	Wader	To maintain favourable conservation condition
		Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	Wader	To maintain favourable conservation condition
		Curlew (<i>Numenius arquata</i>) [A160]	Wader	To maintain favourable conservation condition
		Redshank (<i>Tringa totanus</i>) [A162]	Wader	To maintain favourable conservation condition
		Turnstone (<i>Arenaria interpres</i>) [A169]	Wader	To maintain favourable conservation condition
		Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	Seabird	To maintain favourable conservation condition
		Common Gull (<i>Larus canus</i>) [A182]	Seabird	To maintain favourable conservation condition
		Wetlands and Waterbirds [A999]	Waterbird	To maintain favourable conservation condition
Dingle Peninsula SPA (site code: 004153)	0.73	Fulmar (<i>Fulmarus glacialis</i>) [A009]	Seabird	To restore favourable conservation condition
		Peregrine (<i>Falco peregrinus</i>) [A103]	Raptor	To maintain favourable conservation condition
		Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]	Terrestrial	To restore favourable conservation condition

Special Protection Area [site code]	Distance (km)	Special Conservation Interest	Broad Ecological Group	Conservation Objective
Magharee Islands SPA (site code: 004125)	4.09	Storm Petrel (<i>Hydrobates pelagicus</i>) [A014]	Seabird	To maintain favourable conservation condition
		Shag (<i>Phalacrocorax aristotelis</i>) [A018]	Seabird	To restore favourable conservation condition
		Barnacle Goose (<i>Branta leucopsis</i>) [A045]	Waterfowl	To restore favourable conservation condition
		Common Gull (<i>Larus canus</i>) [A182]	Seabird	To maintain favourable conservation condition
		Common Tern (<i>Sterna hirundo</i>) [A193]	Seabird	To restore favourable conservation condition
		Arctic Tern (<i>Sterna paradisaea</i>) [A194]	Seabird	To restore favourable conservation condition
		Little Tern (<i>Sternula albifrons</i>) [A885]	Seabird	To restore favourable conservation condition
Castlemaine Harbour SPA (site code: 004029)	9.43	Red-throated Diver (<i>Gavia stellata</i>) [A001]	Waterbird	To maintain favourable conservation condition
		Cormorant (<i>Phalacrocorax carbo</i>) [A017]	Seabird	To maintain favourable conservation condition
		Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Waterfowl	To maintain favourable conservation condition
		Wigeon (<i>Mareca penelope</i>) [A855]	Waterfowl	To maintain favourable conservation condition
		Mallard (<i>Anas platyrhynchos</i>) [A053]	Waterfowl	To maintain favourable conservation condition
		Pintail (<i>Anas acuta</i>) [A054]	Waterfowl	To maintain favourable conservation condition
		Scaup (<i>Aythya marila</i>) [A062]	Waterfowl	To maintain favourable conservation condition
		Common Scoter (<i>Melanitta nigra</i>) [A065]	Waterfowl	To maintain favourable conservation condition
		Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	Wader	To maintain favourable conservation condition
		Ringed Plover (<i>Charadrius hiaticula</i>) [A137]	Wader	To maintain favourable conservation condition
		Sanderling (<i>Calidris alba</i>) [A144]	Wader	To maintain favourable conservation condition
		Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	Wader	To maintain favourable conservation condition
		Redshank (<i>Tringa totanus</i>) [A162]	Wader	To maintain favourable conservation condition
		Greenshank (<i>Tringa nebularia</i>) [A164]	Wader	To maintain favourable conservation condition
		Turnstone (<i>Arenaria interpres</i>) [A169]	Wader	To maintain favourable conservation condition
		Chough (<i>Pyrhocorax pyrrhocorax</i>) [A346]	Terrestrial	To maintain favourable conservation condition
		Wetlands & Waterbirds [A999]	Waterbird	To maintain favourable conservation condition
Stack's to Mullaghareirk Mountains, West Limerick Hills and	9.85	Hen Harrier (<i>Circus cyaneus</i>) [A082]	Raptor	To restore favourable conservation condition

Special Protection Area [site code]	Distance (km)	Special Conservation Interest	Broad Ecological Group	Conservation Objective
Mount Eagle SPA (site code: 004161)				
Kerry Head SPA (site code: 004189)	12.54	Fulmar (<i>Fulmarus glacialis</i>) [A009]	Seabird	To maintain favourable conservation condition
		Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]	Terrestrial	To restore favourable conservation condition
Iveragh Peninsula SPA (site code: 004154)	21.29	Fulmar (<i>Fulmarus glacialis</i>) [A009]	Seabird	To maintain favourable conservation condition
		Peregrine (<i>Falco peregrinus</i>) [A103]	Raptor	To maintain favourable conservation condition
		Kittiwake (<i>Rissa tridactyla</i>) [A188]	Seabird	To restore favourable conservation condition
		Guillemot (<i>Uria aalge</i>) [A199]	Seabird	To maintain favourable conservation condition
		Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]	Terrestrial	To restore favourable conservation condition
Killarney National Park SPA (site code: 004038)	25.5	Merlin (<i>Falco columbarius</i>) [A098]	Raptor	To maintain favourable conservation condition
		Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395]	Waterfowl	To restore favourable conservation condition
Loop Head SPA (site code: 004119)	30.36	Kittiwake (<i>Rissa tridactyla</i>) [A188]	Seabird	To maintain favourable conservation condition
		Guillemot (<i>Uria aalge</i>) [A199]	Seabird	To maintain favourable conservation condition
Blasket Islands SPA (site code: 004008)	36.92	Fulmar (<i>Fulmarus glacialis</i>) [A009]	Seabird	To restore favourable conservation condition
		Manx Shearwater (<i>Puffinus puffinus</i>) [A013]	Seabird	To maintain favourable conservation condition
		Storm Petrel (<i>Hydrobates pelagicus</i>) [A014]	Seabird	To maintain favourable conservation condition
		Shag (<i>Phalacrocorax aristotelis</i>) [A018]	Seabird	To maintain favourable conservation condition
		Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]	Seabird	To maintain favourable conservation condition
		Herring Gull (<i>Larus argentatus</i>) [A184]	Seabird	To restore favourable conservation condition
		Kittiwake (<i>Rissa tridactyla</i>) [A188]	Seabird	To restore favourable conservation condition
		Arctic Tern (<i>Sterna paradisaea</i>) [A194]	Seabird	To restore favourable conservation condition
		Razorbill (<i>Alca torda</i>) [A200]	Seabird	To maintain favourable conservation condition
		Puffin (<i>Fratercula arctica</i>) [A204]	Seabird	To restore favourable conservation condition
		Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]	Terrestrial	To restore favourable conservation condition
	53.28	Fulmar (<i>Fulmarus glacialis</i>) [A009]	Seabird	To maintain favourable conservation condition

Special Protection Area [site code]	Distance (km)	Special Conservation Interest	Broad Ecological Group	Conservation Objective
Puffin Island SPA (site code: 004003)		Manx Shearwater (<i>Puffinus puffinus</i>) [A013]	Seabird	To maintain favourable conservation condition
		Storm Petrel (<i>Hydrobates pelagicus</i>) [A014]	Seabird	To maintain favourable conservation condition
		Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]	Seabird	To restore favourable conservation condition
		Razorbill (<i>Alca torda</i>) [A200]	Seabird	To restore favourable conservation condition
		Puffin (<i>Fratercula arctica</i>) [A204]	Seabird	To maintain favourable conservation condition

4.4.3. Mobile Annex II species

Due to the foraging ranges of Annex II marine mammal species occurring in Irish waters, the following species, which are listed as QIs of SACs in Ireland, have been assessed in terms of their potential to occur within the Project area:

- harbour seal (*Phoca vitulina*);
- grey seal (*Halichoerus grypus*);
- harbour porpoise (*Phocoena phocoena*);
- bottlenose dolphin (*Tursiops truncatus*); and
- otter (*Lutra lutra*).

These species are all listed under Annex II of the EU Habitats Directive (92/43/EEC), which requires the designation of Special Areas of Conservation (SACs), where appropriate, for their protection and conservation. In Ireland, these species are considered to be of high conservation importance due to their ecological roles and sensitivity to anthropogenic pressures in the marine environment.

Two species of pinniped, grey seal (*Halichoerus grypus*) and harbour seal (*Phoca vitulina*), inhabit Irish waters year-round and are recorded around the Irish coast, including the south-west coast. Both species have established haul-out sites around Ireland, which are used for resting, breeding and social activity (Ó Cadhla et al., 2007). The largest proportion of the grey seal population is hauled out ashore during the annual moult, which begins in November and continues until April. Grey seals also aggregate in large colonies during the breeding season between August and December (Ó Cadhla et al., 2007), with peak pup production occurring during October and November. Grey seals tend to breed on exposed rocky shores, sandbars or in sea caves with ready access to deeper water.

No established haul-out sites or core resting areas for either species have been identified within the proposed dredging areas in Tralee Bay. Any interaction within the proposed dredging areas is therefore expected to involve occasional transient or foraging individuals.

The harbour porpoise is the most widespread and frequently recorded cetacean species in Irish waters and is sighted largely in inshore waters in the Celtic Sea throughout the year (Ó Cadhla et al., 2004; Berrow et al., 2010; Wall et al., 2013; Rogan et al., 2018). Porpoise sightings vary seasonally, with densities peaking during summer (Berrow et al., 2010).

The Project comprises licensed native oyster dredging within proposed dredging areas in Tralee Bay. Potential interaction with mobile Annex II species may arise through vessel presence, above water disturbance, underwater noise, temporary displacement and, where relevant, changes in prey availability. Any exposure would occur within or adjacent to the dredging areas and along associated vessel transit routes. For each species, the screening assessment considers whether a credible functional connection exists between individuals that may occur within Tralee Bay and a population designated as a Qualifying Interest of a European site. Where such connectivity and an associated impact pathway cannot be excluded on the basis of objective scientific information, likely significant effects are considered possible and the relevant Qualifying Interest is brought forward to Stage 2 Appropriate Assessment.

Table 4-7 presents the SACs in Ireland designated for marine mammals and provides their distances from the dredging areas in Tralee Bay.

Harbour Seal (*Phoca vitulina*)

Harbour seal (*Phoca vitulina*) [1365] is designated as a QI of Kenmare River SAC [002158], which is the nearest European site designated for the species and is located approximately 98.85 km from the Project area. Harbour seals use coastal and estuarine environments and generally display fidelity to local haul out areas. However, movement distances vary considerably between regions and individuals, with telemetry studies recording some movements exceeding 100 km (Sharples et al., 2012). Other SACs designated for harbour seal occur at greater distances from the Project, including Kilkieran Bay and Islands SAC [002111] at approximately 121.25 km, Galway Bay Complex SAC [000268] at approximately 139.38 km and Glengarriff Harbour and Woodland SAC [000090] at approximately 173.89 km.

Records held by the National Biodiversity Data Centre indicate that harbour seal has occurred within Tralee Bay in recent years. These records confirm that individuals may be present within the wider Project area and, consequently, that exposure to vessel activity and dredging operations cannot be excluded. However, the records do not identify the origin of the animals concerned and do not establish functional connectivity between Tralee Bay and the QI population of Kenmare River SAC or any other European site designated for the species.

The Project does not overlap any SAC designated for harbour seal and would not affect designated haul out, breeding, moulting or resting sites, or supporting habitat within those European sites. Accordingly, even if an individual associated with a designated SAC population were to enter Tralee Bay, the nature and spatial extent of the Project would not result in effects capable of undermining the conservation objectives for Harbour Seal at that site. On this basis, likely significant effects on Harbour Seal as a Qualifying Interest of a European site can be excluded, and the species can be screened out at Stage 1 Appropriate Assessment.

Grey seal (*Halichoerus grypus*)

Grey seal (*Halichoerus grypus*) [1364] is designated as a Qualifying Interest of Blasket Islands SAC [002172], which is the nearest SAC designated for this species and is located approximately 48.81 km from the Project area. Other SACs designated for grey seal occur at greater distances, including Slyne Head Islands SAC [000328] at approximately 133.62 km, Inishbofin and Inishshark SAC [000278] at approximately 155.65 km and Roaringwater Bay and Islands SAC [000101] at approximately 165.39 km.

Grey seals exhibit extensive foraging ranges and are capable of travelling considerable distances from haul-out sites. Habitat-based distribution modelling using telemetry data from the United Kingdom and Ireland identified a maximum recorded foraging range of 448 km for grey seal. The modelling also demonstrated that areas of elevated at-sea density associated with certain SAC populations may occur more than 150 km from the designated site (Carter et al., 2022). Connectivity over comparable distances has also been demonstrated through photographic identification studies undertaken around Wales. The mean at-sea distance between capture and recapture locations was 50 km, while individual grey seals were recorded using sites up to 230 km apart (Langley et al., 2020). The 50 km value reported by Langley et al. (2020) represents the mean distance between capture and recapture locations and should not be interpreted as a mean foraging distance.

Grey seals utilise coastal and offshore waters extensively and may occur intermittently within Tralee Bay, particularly in the outer bay, while foraging or moving through the wider coastal environment. Recent records from the National Biodiversity Data Centre confirm that grey seal occurs outside of Tralee Bay, within only strandings within the Bay. These records demonstrate local occurrence within recent years but do not necessarily establish functional connectivity with the QI population of Blasket Islands SAC or any other European site designated for the species.

Potential effects relevant to grey seal are limited to localised and intermittent disturbance associated with vessel activity, underwater noise and dredging operations, including the potential temporary displacement of individuals foraging or transiting through the Project area. The nearest haul-out site designated for breeding, moulting or resting is the Blasket Islands SAC. The Project will not create an artificial barrier capable of restricting access to suitable habitat and does not involve piling, blasting or another source of high-energy impulsive underwater noise. These characteristics reduce the likely magnitude and spatial extent of potential disturbance but do not, at the screening stage, exclude a potential effect on mobile individuals associated with the SAC population.

A potential source-pathway-receptor relationship has been identified through disturbance or temporary displacement of grey seals associated with Blasket Islands SAC that may forage or transit through Tralee Bay. Having regard to the documented mobility of grey seal, the proximity of Blasket Islands SAC and the confirmed

occurrence of the species within the wider Project area, functional connectivity with the QI population of the SAC cannot be excluded. On the basis of the available objective information, likely significant effects on grey seal as a Qualifying Interest of Blasket Islands SAC cannot be excluded in view of the site's conservation objectives. Grey seal is therefore screened in for further assessment at Stage 2 Appropriate Assessment.

Harbour Porpoise (*Phocoena phocoena*)

Harbour porpoise (*Phocoena phocoena*) [1351] is designated as a Qualifying Interest of Blasket Islands SAC [002172], which is the nearest SAC designated for this species and is located approximately 48.81 km from the Project area. Other SACs designated for harbour porpoise occur at greater distances, including Kenmare River SAC [002158] at approximately 98.85 km, Inishmore Island SAC [000213] at approximately 109.98 km, Kilkieran Bay and Islands SAC [002111] at approximately 121.25 km, Roaringwater Bay and Islands SAC [000101] at approximately 165.39 km and Hook Head SAC [000764] at approximately 375.83 km.

Harbour porpoise is the most widespread and frequently recorded cetacean species in Irish waters and is recorded predominantly in inshore waters in the Celtic Sea throughout the year (Ó Cadhla et al., 2004; Berrow et al., 2010; Wall et al., 2013; Rogan et al., 2018). Harbour porpoise breeds annually in Ireland, predominantly between May and September, with the principal calving period considered to occur during May and June, although this may extend throughout the summer and into early autumn (NPWS, 2014a). The authorised oyster dredging season extends from 1 September to 30 April and therefore falls largely outside the principal breeding and calving period, although some temporal overlap may occur during September.

Records held by the National Biodiversity Data Centre within the dredging areas in Tralee Bay relate to stranding events only. These records confirm the occurrence of harbour porpoise within the wider regional environment but do not, by themselves, demonstrate the regular use of the dredging areas. A live sighting was recorded immediately outside Tralee Bay in 2023, confirming the recent occurrence of the species in adjacent coastal waters. There is no evidence from the available records of residency or sustained use of the dredging areas, and any individuals occurring within the Project area may do so intermittently while foraging or transiting through the bay.

Potential effects relevant to harbour porpoise include localised and intermittent underwater sound and disturbance associated with vessel activity and the operation of oyster dredges. These sound sources would be substantially lower in intensity than high energy impulsive activities such as piling or blasting. Nevertheless, temporary behavioural disturbance or short-term displacement cannot be excluded where harbour porpoise is present near an actively operating vessel.

The Project will not take place within Blasket Islands SAC or any other SAC designated for harbour porpoise and will not create a permanent artificial barrier restricting access to suitable habitat. Given the mobility of the species, the direct marine connection between Tralee Bay and the wider south-west coastal environment, the proximity of Blasket Islands SAC, and the confirmed recent occurrence of harbour porpoise in adjacent waters, the potential for individuals associated with the QI population of Blasket Islands SAC to forage or transit through Tralee Bay requires further consideration.

A potential source pathway receptor relationship has been identified through disturbance or temporary displacement of harbour porpoise associated with Blasket Islands SAC, located approximately 48.81 km from the Project. NBDC records confirm the occurrence of the species within the wider Tralee Bay area. Given its mobility and sensitivity to underwater sound and vessel activity, functional connectivity with the QI population and disturbance from oyster dredging cannot be excluded. Likely significant effects on harbour porpoise as a Qualifying Interest of Blasket Islands SAC cannot therefore be excluded at Stage 1, and the species is screened in for further assessment.

Bottlenose dolphin (*Tursiops truncatus*)

Bottlenose dolphin (*Tursiops truncatus*) [1349] is designated as a Qualifying Interest of Lower River Shannon SAC [002165], which is the nearest SAC designated for this species and is located approximately 15.33 km from the Project area. The Lower River Shannon supports a resident bottlenose dolphin population that is genetically differentiated from other bottlenose dolphin populations occurring in Irish coastal waters (Mirimin et al., 2011). Long term photo identification research has demonstrated continued use of the Shannon Estuary by this population and has documented movements by individual dolphins beyond the boundary of the SAC (Ludwig et al., 2021).

Numerous records held by the National Biodiversity Data Centre confirm the occurrence of bottlenose dolphin throughout Tralee Bay in recent years. These records demonstrate repeated local occurrence but do not, in themselves, identify the population from which the recorded animals originated or provide an effort corrected measure of the frequency with which the Project area is used.

Functional connectivity between bottlenose dolphins using Tralee Bay and the QI population of Lower River Shannon SAC has been directly demonstrated through photo identification. Photo identification data collected in Tralee Bay and Brandon Bay between 2008 and 2016 recorded bottlenose dolphins during more than 90% of the 13 survey trips undertaken, with photo identification data collected during 11 trips (Levesque et al., 2016). A total of 70 individual dolphins were identified, of which 67 had been regularly recorded within the Lower River Shannon SAC. Dolphins associated with the Shannon population represented an average of 98% of the individuals photographed during each survey. The study also identified 62% of the then estimated adult

Shannon population within Tralee Bay and/or Brandon Bay during the study period. These percentages relate to the two bays collectively and should not be interpreted as Tralee Bay specific abundance estimates.

Potential effects relevant to bottlenose dolphin include disturbance or temporary displacement arising from vessel activity, operational underwater sound from the dredge on the seafloor, and the physical presence of vessels and dredging equipment. These activities do not involve piling, blasting or another source of high energy impulsive underwater sound. Any disturbance would therefore be expected to be localised and associated with periods of active fishing.

The site specific conservation objective for bottlenose dolphin in Lower River Shannon SAC is to maintain its favourable conservation condition. Relevant attributes include maintaining access to suitable habitat, maintaining preferentially used critical areas in their natural condition and ensuring that human activities occur at levels that do not adversely affect the bottlenose dolphin population at the site (NPWS, 2012). The Project is situated outside the SAC boundary, but identified members of the QI population use Tralee Bay. Potential effects on these individuals are therefore relevant to the conservation objectives of the SAC.

A potential source pathway receptor relationship has been identified through disturbance, interference with foraging or temporary displacement of bottlenose dolphins belonging to the Lower River Shannon SAC population while using Tralee Bay. Functional connectivity is demonstrated by photo identification and does not depend solely on the geographic proximity of the Project to the SAC. Having regard to the repeated occurrence of bottlenose dolphin within Tralee Bay, the demonstrated use of Tralee Bay by a substantial proportion of the Lower River Shannon population and the potential for vessel and dredging activity to result in behavioural disturbance, likely significant effects on bottlenose dolphin as a Qualifying Interest of Lower River Shannon SAC cannot be excluded on the basis of the available objective information. Bottlenose dolphin is therefore screened in for further assessment.

Otter (*Lutra lutra*)

Otter (*Lutra lutra*) is listed under Annex II and Annex IV of the Habitats Directive and is a QI of Tralee Bay and Magharees Peninsula, West to Cloghane SAC [002070], Castlemaine Harbour SAC [000343] and Lower River Shannon SAC [002165]. The Project is located within Tralee Bay and Magharees Peninsula, West to Cloghane SAC. Castlemaine Harbour SAC and Lower River Shannon SAC are connected to the wider marine environment through coastal and estuarine waters and have therefore been retained for screening on a precautionary basis. Otters may use rivers, estuaries and coastal margins for foraging, commuting and resting.

National Biodiversity Data Centre records include live and dead records of otter within the inner dredging area, although most records are located further into the estuary rather than within the bay itself. The reviewed records do not include recent live observations within the dredging areas. The absence of recent live records

does not demonstrate that otters are absent, particularly as these records are not derived from systematic surveys. The available data confirm that otter occurs within the wider Project area and may use Tralee Bay intermittently for foraging or movement.

The site specific conservation objective for otter in each of the three SACs is to restore its favourable conservation condition. The objectives contain common targets of no significant decline in distribution, terrestrial habitat, marine habitat, freshwater habitat, couching sites and holts, or available fish biomass, together with no significant increase in barriers to connectivity.

Potential sources of effect include vessel presence, underwater noise, physical disturbance of the seabed and localised changes to benthic habitat or prey availability. A pathway exists through the direct overlap between the Project and Tralee Bay and Magharees Peninsula, West to Cloghane SAC and through the potential use of the dredging areas by foraging or commuting otters.

The Project does not involve disturbance of riparian habitat, removal of bankside vegetation, excavation, interference with potential holts or couching sites, or the creation of barriers to movement. Dredging would take place during daylight hours and has been undertaken in Tralee Bay for several decades. On the information provided, the Project would not introduce a new source of vessel activity or increase vessel movements above those historically associated with the fishery. These characteristics reduce the scale of potential disturbance but do not exclude temporary disturbance or displacement of otters using the dredging areas.

A source pathway receptor relationship has been identified through the potential disturbance or temporary displacement of otters foraging or commuting within Tralee Bay and through possible localised effects on marine foraging habitat and prey availability. Given the direct overlap with Tralee Bay and Magharees Peninsula, West to Cloghane SAC and the confirmed occurrence of otter within the wider Project area, likely significant effects on otter cannot be excluded on the basis of the available information. Otter is therefore screened in for further assessment. Castlemaine Harbour SAC and Lower River Shannon SAC are also retained on a precautionary basis because potential connectivity through coastal and estuarine waters has been identified and functional connectivity cannot presently be excluded.

Table 4-7: Special Areas of Conservation (SACs) and designated Annex II marine mammal species distance to the proposed Project area. SACs screened in and included in the assessment in section 4.4.3 are highlighted in bold as a population level effect cannot be excluded for these SACs given their proximity to The Project.

SAC (Site code)	Distance from Dredging Area	Harbour seal (<i>Phoca vitulina</i>) (1365)	Grey seal (<i>Halichoerus grypus</i>) (1364)	Harbour porpoise (<i>Phocoena phocoena</i>) (1351)	Bottlenose dolphin (<i>Tursiops truncatus</i>) (1349)
Lower River Shannon SAC [002165]	15.33				✓
Blasket Islands SAC [002172]	48.81		✓	✓	
Kenmare River SAC [002158]	98.85	✓		✓	
Inishmore Island SAC [000213]	109.98			✓	
Kilkieran Bay and Islands SAC [002111]	121.25	✓		✓	
Slyne Head Islands SAC [000328]	133.62		✓		✓
Galway Bay Complex SAC [000268]	139.38	✓			
Slyne Head Peninsula SAC [002074]	142.92				✓
Belgica Mound Province SAC [002327]	155.01			✓	✓
Inishbofin and Inishshark SAC [000278]	155.65		✓		
Roaringwater Bay and Islands SAC [000101]	165.39		✓	✓	
Glengarriff Harbour and Woodland SAC [000090]	173.89	✓			
West Connacht Coast SAC [002998]	179.67			✓	✓
Clew Bay Complex SAC [001482]	201.16	✓			
Duvillaun Islands SAC [000495]	212.5		✓		✓
Inishkea Islands SAC [000507]	216.95		✓		
Killala Bay/Moy Estuary SAC [000458]	307.82	✓			
Ballysadare Bay SAC [000622]	337.26	✓			
Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC [000627]	338.2	✓			
Bunduff Lough and Machair/Trawalua/Mullaghmore SAC [000625]	346.64			✓	
St. John's Point SAC [000191]	347.69				✓
Slieve Tooley/Tormore Island/Loughros Beg Bay SAC [000190]	351.71		✓		

SAC (Site code)	Distance from Dredging Area	Harbour seal (<i>Phoca vitulina</i>) (1365)	Grey seal (<i>Halichoerus grypus</i>) (1364)	Harbour porpoise (<i>Phocoena phocoena</i>) (1351)	Bottlenose dolphin (<i>Tursiops truncatus</i>) (1349)
West of Ardara/Maas Road SAC [000197]	355.19	✓			
Porcupine Bank Canyon SAC [003001]	358.08				✓
South-West Porcupine Bank SAC [002329]	363.21				✓
Rutland Island and Sound SAC [002283]	371.15	✓			
Donegal Bay (Murvagh) SAC [000133]	371.87	✓			
Hook Head SAC [000764]	375.83			✓	✓
Gweedore Bay and Islands SAC [001141]	389.29			✓	
Saltee Islands SAC [000707]	395.39		✓		
Carnsore Point SAC [002269]	415.8			✓	
Horn Head and Rinclevan SAC [000147]	419.51		✓		
Blackwater Bank SAC [002953]	441.93			✓	
Slaney River Valley SAC [000781]	443.1	✓			
Lough Swilly SAC [002287]	469.34			✓	
Rockabill to Dalkey Island SAC [003000]	566.61			✓	
Codling Fault Zone SAC [003015]	566.67			✓	
Lambay Island SAC [000204]	573.9	✓	✓	✓	

4.5. Screening for Potential Likely Significant Effects

4.5.1. Qualifying Interests

The overall conservation objective for the SAC is to maintain or restore the favourable conservation condition of the Annex I habitats and Annex II species for which the site is designated. Favourable conservation status for a habitat is achieved where its natural range and the area it covers within that range are stable or increasing, the specific structure and functions necessary for its long term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable. Favourable conservation status for a species is achieved where population dynamics data indicate that the species is maintaining itself on a long term basis as a viable component of its natural habitat, its natural range is neither being reduced nor likely to be reduced for the foreseeable future, and sufficient habitat exists and is likely to continue to exist to maintain its populations on a long term basis.

Table 4-8: Stage 1 assessment for Qualifying Interests of SACs identified within the Zol of the Project.

Site	Qualifying Interest	Impact Mechanisms	S-P-R Assessment	Brought to Stage 2 (Y/N)
Tralee Bay and Magharees Peninsula, West to Cloghane SAC [002070]	Estuaries [1130]	Physical habitat disturbance Increased suspended sediments and smothering Impacts on benthic community structure	The proposed Inner and Outer Tralee Bay dredging areas occur within Tralee Bay and Magharees Peninsula, West to Cloghane SAC and overlap mapped benthic communities that are constituent elements of Estuaries [1130]. Bottom-contacting oyster dredging provides a direct pathway through seabed abrasion, penetration and displacement of sediment, shell and associated fauna. Dredging may also generate localised suspended sediment and deposition. Spatial overlap identifies areas of potential exposure but does not mean that every part of either polygon would be dredged during an individual season. Given the direct spatial pathway and the potential for effects on habitat structure and constituent benthic communities, likely significant effects cannot be excluded at Stage 1.	Yes - Likely significant effects cannot be excluded. Brought forward to Stage 2.
	Mudflats and sandflats not covered by seawater at low tide [1140]	Physical habitat disturbance Increased suspended sediments and smothering Impacts on benthic community structure	The proposed Inner and Outer Tralee Bay dredging areas overlap mapped communities that are constituent elements of Mudflats and sandflats not covered by seawater at low tide [1140], including parts of the mapped <i>Ostrea edulis</i> dominated community. The <i>Ostrea edulis</i> dominated community overlap is identified as being within approximately 36.18% of the proposed Inner Tralee Bay dredging area and 15.2% of the proposed Outer Tralee Bay dredging area. Bottom-contacting dredging provides direct pathways through physical habitat disturbance, impacts on benthic community structure, and localised sediment resuspension and deposition. Given the direct spatial pathway and the requirement to conserve the relevant constituent communities in natural condition, likely significant effects cannot be excluded at Stage 1.	Yes - Likely significant effects cannot be excluded. Brought forward to Stage 2.
	Coastal lagoons [1150]	Physical habitat disturbance Increased suspended sediments and smothering Impacts on benthic community structure	The Coastal lagoons qualifying habitat within the SAC is represented by Lough Gill, a shallow oligohaline sedimentary lagoon located on the Magharees peninsula and separated from the open marine environment by sedimentary barriers. The Project is confined to commercial native oyster dredging within the proposed Inner and Outer Tralee Bay dredge areas and does not spatially overlap Lough Gill. No credible pathway has been identified through which seabed disturbance or localised sediment resuspension associated with oyster dredging could affect the habitat area. In the absence of a	No - Likely significant effects can be excluded. Screened out at Stage 1.

Site	Qualifying Interest	Impact Mechanisms	S-P-R Assessment	Brought to Stage 2 (Y/N)
			Source Pathway Receptor relationship, likely significant effects can be excluded.	
	Large shallow inlets and bays [1160]	Physical habitat disturbance Increased suspended sediments and smothering Impacts on benthic community structure	The proposed Inner and Outer Tralee Bay dredging areas directly overlap the mapped <i>Ostrea edulis</i> dominated community, which is a constituent community of Large shallow inlets and bays [1160] and is required to be conserved in natural condition. Potential pathways include physical habitat disturbance, impacts on benthic community structure, and localised sediment resuspension and deposition. Given the direct spatial pathway and the sensitivity of the <i>Ostrea edulis</i> dominated community, likely significant effects cannot be excluded at Stage 1.	Yes - Likely significant effects cannot be excluded. Brought forward to Stage 2.
	Reefs [1170]	Physical habitat disturbance Increased suspended sediments and smothering Impacts on benthic community structure	The proposed Outer Tralee Bay dredging area overlaps mapped Subtidal reef community complex across approximately 7.0% of that dredging polygon. The proposed Inner Tralee Bay dredging area overlaps approximately 1.15% Intertidal reef community complex and approximately 0.34% Subtidal reef community complex. These percentages describe the composition of the defined dredging polygons and do not represent the proportion of the total reef habitat within the SAC that would be affected. Bottom-contacting dredging provides a potential direct physical disturbance pathway wherever dredging occurs within mapped reef. Localised suspended sediment and deposition may provide an additional indirect pathway. The spatial overlap does not demonstrate that reef is actively targeted or dredged, but the presently available information does not establish operational exclusions sufficient to remove the pathway at Stage 1. Likely significant effects cannot therefore be excluded.	Yes - Likely significant effects cannot be excluded. Brought forward to Stage 2.
	Annual vegetation of drift lines [1210]	No impact mechanism identified	The QI occurs in coastal, terrestrial or freshwater habitat outside the marine dredging footprint. No source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Perennial vegetation of stony banks [1220]	No impact mechanism identified	The QI occurs in coastal, terrestrial or freshwater habitat outside the marine dredging footprint. No source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	No impact mechanism identified	The QI occurs in coastal, terrestrial or freshwater habitat outside the marine dredging footprint. No source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.

Site	Qualifying Interest	Impact Mechanisms	S-P-R Assessment	Brought to Stage 2 (Y/N)
	<i>Salicornia</i> and other annuals colonising mud and sand [1310]	No impact mechanism identified	The QI occurs in coastal, terrestrial or freshwater habitat outside the marine dredging footprint. No source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]	No impact mechanism identified	The QI occurs in coastal, terrestrial or freshwater habitat outside the marine dredging footprint. No source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	No impact mechanism identified	The QI occurs in coastal, terrestrial or freshwater habitat outside the marine dredging footprint. No source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Embryonic shifting dunes [2110]	No impact mechanism identified	The QI occurs in coastal, terrestrial or freshwater habitat outside the marine dredging footprint. No source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]	No impact mechanism identified	The QI occurs in coastal, terrestrial or freshwater habitat outside the marine dredging footprint. No source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	No impact mechanism identified	The QI occurs in coastal, terrestrial or freshwater habitat outside the marine dredging footprint. No source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Dunes with <i>Salix repens ssp. argentea</i> (Salicion arenariae) [2170]	No impact mechanism identified	The QI occurs in coastal, terrestrial or freshwater habitat outside the marine dredging footprint. No source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Humid dune slacks [2190]	No impact mechanism identified	The QI occurs in coastal, terrestrial or freshwater habitat outside the marine dredging footprint. No source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	<i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]	No impact mechanism identified	The QI occurs in coastal, terrestrial or freshwater habitat outside the marine dredging footprint. No source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i>	No impact mechanism identified	The QI occurs in coastal, terrestrial or freshwater habitat outside the marine dredging footprint. No source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.

Site	Qualifying Interest	Impact Mechanisms	S-P-R Assessment	Brought to Stage 2 (Y/N)
	(Alno-Padion, Alnion incanae, Salicion albae) [91E0]			
	Lutra lutra (Otter) [1355]	Above water visual and noise disturbance Effects on prey resources and the trophic food chain	NPWS conservation-objective information maps potential marine otter habitat principally within 80 m of the shoreline and reports that otters regularly commute across open-water gaps of up to approximately 500 m. General NPWS guidance reports linear territories of approximately 1 - 2 km in food-rich lowland systems and up to approximately 10 - 15 km where food is less abundant. The NBDC records reviewed confirm otter occurrence in the wider Tralee Bay area, including historic live and dead records associated with the inner bay. Functional connectivity with this QI population cannot be excluded at Stage 1.	Yes - Likely significant effects cannot be excluded. Brought forward to Stage 2.
	<i>Petalophyllum ralfsii</i> (Petalwort) [1395]	No impact mechanism identified	The QI occurs in coastal, terrestrial or freshwater habitat outside the marine dredging footprint. No source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
Castlemaine Harbour SAC [000343]	Estuaries [1130]	No impact mechanism identified	The SAC is 12.50 km from the Project. Seabed disturbance and sediment effects will be localised within Tralee Bay and no pathway to this QI has been identified. Likely significant effects can be excluded	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Mudflats and sandflats not covered by seawater at low tide [1140]	No impact mechanism identified	The Project is located in Tralee Bay, approximately 12.50 km from Castlemaine Harbour SAC. There is no spatial overlap with Mudflats and sandflats within Castlemaine Harbour. Seabed disturbance and sediment resuspension associated with oyster dredging would be localised within Tralee Bay and would not extend to this habitat. No credible source-pathway-receptor relationship has been identified and likely significant effects can be excluded.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Annual vegetation of drift lines [1210]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Perennial vegetation of stony banks [1220]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.

Site	Qualifying Interest	Impact Mechanisms	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	<i>Salicornia</i> and other annuals colonising mud and sand [1310]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Atlantic salt meadows (Glauco-Puccinellietalia maritima) [1330]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Embryonic shifting dunes [2110]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Dunes with <i>Salix repens ssp. argentea</i> (<i>Salicion arenariae</i>) [2170]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Humid dune slacks [2190]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.

Site	Qualifying Interest	Impact Mechanisms	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	<i>Petromyzon marinus</i> (Sea Lamprey) [1095]	Underwater noise disturbance	Sea Lamprey is an anadromous species. The Castlemaine Harbour SAC population migrates between the open sea, Castlemaine Harbour and the freshwater spawning habitat of the River Laune and associated catchments. These migration pathways are spatially separate from Tralee Bay. The defined Inner and Outer Tralee Bay dredging areas are approximately 12.50 km from the nearest part of the SAC and are not located within or across the entrance to Castlemaine Harbour or the migration route to its designated river catchments. Underwater sound generated by the proposed dredging would be localised within Tralee Bay and would not extend into Castlemaine Harbour or its freshwater catchments. The Project would not affect spawning habitat, juvenile habitat or access from the estuary.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	<i>Lampetra fluviatilis</i> (River Lamprey) [1099]	Underwater noise disturbance	River Lamprey is an anadromous species. The migration pathway for the Castlemaine Harbour SAC population is between the open sea, Castlemaine Harbour and the River Laune and associated freshwater catchments. Tralee Bay is not part of this migration pathway. The defined Inner and Outer Tralee Bay dredging areas are approximately 12.50 km from the nearest part of the SAC and are not situated at or across the entrance to Castlemaine Harbour. Project-related seabed disturbance and underwater sound would remain localised within Tralee Bay and would not affect access to the Castlemaine river systems, spawning beds or juvenile habitat. No source-pathway-receptor relationship has therefore been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	<i>Salmo salar</i> (Salmon) [1106]	Underwater noise disturbance	Atlantic Salmon is migratory, but the Castlemaine Harbour SAC population migrates through Castlemaine Harbour to and from the River Laune and associated freshwater systems. These migration pathways are spatially separate from Tralee Bay. The defined Inner and Outer Tralee Bay dredging areas are approximately 12.50 km from the nearest part of the SAC and do not lie within or across the Castlemaine Harbour migration corridor. The localised underwater	No - Likely significant effects can be excluded. Screened out at Stage 1.

Site	Qualifying Interest	Impact Mechanisms	S-P-R Assessment	Brought to Stage 2 (Y/N)
			sound and sediment disturbance generated by oyster dredging would not extend into Castlemaine Harbour or its rivers. The Project would not affect access to spawning habitat, adult spawning stocks, smolt passage, fry abundance, redds or freshwater quality within the designated system. No source-pathway-receptor relationship has therefore been identified.	
	<i>Lutra lutra</i> (Otter) [1355]	Above water visual and noise disturbance Effects on prey resources and the trophic food chain	The nearest part of Castlemaine Harbour SAC is approximately 12.50 km from the Project when measured as a straight-line site-boundary distance. NPWS conservation-objective information maps potential marine otter habitat principally within 80 m of the shoreline and reports that otters regularly commute across open-water gaps of up to approximately 500 m. General NPWS guidance reports linear territories of approximately 1 - 2 km in food-rich lowland systems and up to approximately 10 - 15 km where food is less abundant. The NBDC records reviewed confirm otter occurrence in the wider Tralee Bay area, including historic live and dead records associated with the inner bay. Functional connectivity with this QI population cannot be excluded at Stage 1.	Yes - Likely significant effects cannot be excluded. Brought forward to Stage 2.
	<i>Petalophyllum ralfsii</i> (Petalwort) [1395]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
Lower River Shannon SAC [002165]	Sandbanks which are slightly covered by sea water all the time [1110]	Physical habitat disturbance Increased suspended sediments and smothering Impacts on benthic community structure	The SAC is 15.33 km from the Project. Localised seabed and sediment effects within Tralee Bay will not extend to this QI and no source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Estuaries [1130]	Physical habitat disturbance Increased suspended sediments and smothering Impacts on benthic community structure	The SAC is 15.33 km from the Project. Localised seabed and sediment effects within Tralee Bay will not extend to this QI and no source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Mudflats and sandflats not covered by seawater at low tide [1140]	Physical habitat disturbance Increased suspended sediments and smothering Impacts on benthic	The SAC is 15.33 km from the Project. Localised seabed and sediment effects within Tralee Bay will not extend to this QI and no source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.

Site	Qualifying Interest	Impact Mechanisms	S-P-R Assessment	Brought to Stage 2 (Y/N)
		community structure		
	Coastal lagoons [1150]	Physical habitat disturbance Increased suspended sediments and smothering Impacts on benthic community structure	The SAC is 15.33 km from the Project. Localised seabed and sediment effects within Tralee Bay will not extend to this QI and no source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Large shallow inlets and bays [1160]	Physical habitat disturbance Increased suspended sediments and smothering Impacts on benthic community structure	The SAC is 15.33 km from the Project. Localised seabed and sediment effects within Tralee Bay will not extend to this QI and no source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Reefs [1170]	Physical habitat disturbance Increased suspended sediments and smothering Impacts on benthic community structure	The SAC is 15.33 km from the Project. Localised seabed and sediment effects within Tralee Bay will not extend to this QI and no source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Perennial vegetation of stony banks [1220]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	<i>Salicornia</i> and other annuals colonising mud and sand [1310]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Atlantic salt meadows (Glauco-Puccinellietalia maritima) [1330]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Mediterranean salt meadows (Juncetalia maritimi) [1410]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.

Site	Qualifying Interest	Impact Mechanisms	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Water courses of plain to montane levels with the <i>Ranunculus fluitans</i> and Callitriche-Batrachion vegetation [3260]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	<i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	<i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029]	No impact mechanism identified	The QI occurs outside the marine Project area and no source pathway receptor relationship has been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	<i>Petromyzon marinus</i> (Sea Lamprey) [1095]	Underwater noise disturbance	Sea Lamprey is an anadromous species, but the designated Lower River Shannon population migrates through the Shannon Estuary to and from spawning and juvenile habitat in the Lower Shannon and its tributaries. Tralee Bay is not within or across this migration corridor. The defined Inner and Outer Tralee Bay dredging areas are approximately 15.33 km from the nearest part of the SAC. The Project would not obstruct the entrance to the Shannon Estuary and its localised underwater sound and suspended sediment effects would not extend into the Shannon Estuary or the designated freshwater catchments. The Project would not affect extent of anadromy, access to spawning habitat, spawning beds or juvenile habitat. No source-pathway-receptor relationship has therefore been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	<i>Lampetra planeri</i> (Brook Lamprey) [1096]	Underwater noise disturbance	Brook Lamprey is a non-anadromous species that completes its lifecycle in freshwater. It does not undertake a marine migration and has no marine life stage that could occur in Tralee Bay. The Project is	No - Likely significant effects can be excluded. Screened out at Stage 1.

Site	Qualifying Interest	Impact Mechanisms	S-P-R Assessment	Brought to Stage 2 (Y/N)
			confined to the defined Inner and Outer marine dredging areas and has no direct or hydrological connection to the Lower River Shannon freshwater catchments supporting this Qualifying Interest. Project-related seabed disturbance, suspended sediment and vessel activity in Tralee Bay cannot reach Brook Lamprey habitat in the Lower River Shannon system. No source-pathway-receptor relationship has therefore been identified.	
	<i>Lampetra fluviatilis</i> (River Lamprey) [1099]	Underwater noise disturbance	River Lamprey is an anadromous species, but the Lower River Shannon SAC population migrates through the Shannon Estuary to and from the freshwater rivers supporting spawning and juvenile habitat. Tralee Bay is not within or across this migration corridor. The defined Inner and Outer Tralee Bay dredging areas are approximately 15.33 km from the nearest part of the SAC. Localised underwater sound and sediment disturbance in Tralee Bay would not extend into the Shannon Estuary or its river catchments and would not create a barrier to migration. The Project would not affect extent of anadromy, access to spawning beds, juvenile density or juvenile habitat. No source-pathway-receptor relationship has therefore been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	<i>Salmo salar</i> (Salmon) [1106]	Underwater noise disturbance	Atlantic Salmon is migratory, but the Lower River Shannon SAC population migrates through the Shannon Estuary to and from the Lower Shannon and its tributaries. Tralee Bay is not within or across this migration corridor. The defined Inner and Outer Tralee Bay dredging areas are approximately 15.33 km from the nearest part of the SAC and the Project would not obstruct the entrance to the Shannon Estuary. Underwater sound and suspended sediment generated by dredging would remain localised within Tralee Bay and would not reach the designated freshwater habitat. The Lower River Shannon conservation objective for Salmon applies to the species in freshwater. The Project would not affect adult returns, smolt passage, fry abundance, redds, freshwater habitat or water quality within the designated system. No source-pathway-receptor relationship has therefore been identified.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	<i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349]	Underwater noise disturbance	Bottlenose dolphins from the Lower River Shannon population frequently transit and are sighted in Tralee Bay. Vessel activity and underwater noise therefore provide direct disturbance pathways to	Yes - Likely significant effects cannot be

Site	Qualifying Interest	Impact Mechanisms	S-P-R Assessment	Brought to Stage 2 (Y/N)
		Above water visual and noise disturbance	the QI population. Functional connectivity with this QI population cannot be excluded at Stage 1.	excluded. Brought forward to Stage 2.
	<i>Lutra lutra (Otter)</i> [1355]	Above water visual and noise disturbance Effects on prey resources and the trophic food chain	The nearest part of Lower River Shannon SAC is approximately 15.33 km from the Project when measured as a straight-line distance between the Project and the SAC boundary. A potential marine connection exists through the coastal waters around Kerry Head, although the actual along-coast movement distance is greater than the minimum straight-line separation. NPWS conservation-objective information maps potential marine otter habitat principally within 80 m of the shoreline and reports regular open-water commuting across gaps of up to approximately 500 m. General NPWS guidance reports linear territories of approximately 1 - 2 km in productive lowland systems and up to approximately 10 - 15 km in less productive systems. These figures provide context but do not demonstrate that otters from the Lower River Shannon SAC routinely forage within Tralee Bay or that 15 km is an established coastal foraging radius. Likely significant effects cannot be excluded at Stage 1, and this QI is carried to Stage 2.	Yes - Likely significant effects cannot be excluded. Brought forward to Stage 2.
Blasket Islands SAC [002172]	<i>Halichoerus grypus (Grey seal)</i> [1364]	Underwater noise disturbance Above water visual and noise disturbance	The SAC is 48.81 km from the Project, within the mean foraging distance applied for grey seal. The species occurs in Tralee Bay and functional connectivity with the QI population cannot be excluded.	Yes - Likely significant effects cannot be excluded. Brought forward to Stage 2.
	<i>Phocoena phocoena (Harbour porpoise)</i> [1351]	Underwater noise disturbance Above water visual and noise disturbance	Blasket Islands SAC is approximately 48.81 km from the Project. There is an uninterrupted marine environment between the SAC and Tralee Bay and Harbour Porpoise is sufficiently mobile to forage or transit beyond the SAC boundary. A live Harbour Porpoise sighting recorded immediately outside Tralee Bay in 2023 confirms recent live occurrence in adjacent coastal waters. here is no evidence of residency or sustained use of the defined Inner and Outer dredging areas. Use may be intermittent by animals foraging or transiting through the wider bay. Oyster dredging and associated small-vessel activity would generate localised and intermittent underwater sound at substantially lower intensity than piling or blasting. Temporary behavioural disturbance or short-term displacement cannot nonetheless be excluded when a porpoise is present close to an	Yes - Likely significant effects cannot be excluded. Brought forward to Stage 2.

Site	Qualifying Interest	Impact Mechanisms	S-P-R Assessment	Brought to Stage 2 (Y/N)
			operating vessel. Likely significant effects cannot be excluded at Stage 1, and this QI is carried to Stage 2.	
Slyne Head Islands SAC [000328]	Reefs [1170]	No impact mechanism identified	Slyne Head Islands SAC is approximately 133.62 km from the Project. The Project is confined to Tralee Bay and no pathway has been identified through which localised dredging, sediment disturbance or vessel activity could affect this QI within the SAC.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	<i>Tursiops truncatus</i> (Common bottlenose dolphin) [1349]	Underwater noise disturbance Above water visual and noise disturbance	Common bottlenose dolphin may occur in Irish coastal waters, but Slyne Head Islands SAC is approximately 133.62 km from the Project and no evidence of functional connectivity with its QI population has been identified. The localised effects of oyster dredging in Tralee Bay would not extend to the population or supporting habitat of this SAC.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	<i>Halichoerus grypus</i> (Grey seal) [1364]	Underwater and above water noise disturbance Vessel presence and movement	Grey Seal may undertake extensive movements and may occur intermittently within Tralee Bay. No evidence has been identified linking Grey Seal using Tralee Bay with the QI population of Slyne Head Islands SAC. The Project would not affect haul-out, breeding, moulting or resting habitat within the SAC, and its localised disturbance effects would not extend to the site. Species mobility alone does not establish functional connectivity or an effect on the conservation objectives of the designated population. Likely significant effects can therefore be excluded at Stage 1 AA.	No - Likely significant effects can be excluded. Screened out at Stage 1.
Inishbofin and Inishshark SAC [000278]	Coastal lagoons [1150]	No impact mechanism identified	Inishbofin and Inishshark SAC is approximately 155.65 km from the Project. The Project is confined to Tralee Bay and no pathway has been identified through which localised dredging, sediment disturbance or vessel activity could affect this QI within the SAC.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) [3110]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	European dry heaths [4030]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct,	No - Likely significant effects can be excluded. Screened out at Stage 1.

Site	Qualifying Interest	Impact Mechanisms	S-P-R Assessment	Brought to Stage 2 (Y/N)
			hydrological, or functional pathway has been identified between the dredge activities and this QI.	
	<i>Halichoerus grypus</i> (Grey seal) [1364]	Underwater and above water noise disturbance Vessel presence and movement	Grey Seal may undertake extensive movements and may occur intermittently within Tralee Bay. No evidence has been identified linking Grey Seal using Tralee Bay with the QI population of Inishbofin and Inishark SAC. The Project would not affect haul-out, breeding, moulting or resting habitat within the SAC, and its localised disturbance effects would not extend to the site. Species mobility alone does not establish functional connectivity or an effect on the conservation objectives of the designated population. Likely significant effects can therefore be excluded at Stage 1 AA.	No - Likely significant effects can be excluded. Screened out at Stage 1.
Roaringwater Bay and Islands SAC [000101]	Large shallow inlets and bays [1160]	No impact mechanism identified	Roaringwater Bay and Islands SAC is approximately 165.39 km from the Project. The Project is confined to Tralee Bay and no pathway has been identified through which localised dredging, sediment disturbance or vessel activity could affect this QI within the SAC.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Reefs [1170]	No impact mechanism identified	Roaringwater Bay and Islands SAC is approximately 165.39 km from the Project. The Project is confined to Tralee Bay and no pathway has been identified through which localised dredging, sediment disturbance or vessel activity could affect this QI within the SAC.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	European dry heaths [4030]	No impact mechanism identified	This QI is a fixed terrestrial, freshwater or inland habitat/species and is not located within or adjacent to the dredge area. No direct, hydrological, or functional pathway has been identified between the dredge activities and this QI.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	Submerged or partially submerged sea caves [8330]	No impact mechanism identified	Roaringwater Bay and Islands SAC is approximately 165.39 km from the Project. The Project is confined to Tralee Bay and no pathway has been identified through which localised dredging, sediment disturbance or vessel activity could affect this QI within the SAC.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	<i>Phocoena Phocoena</i> (Harbour porpoise) [1351]	Underwater noise disturbance Vessel presence and movement	Harbour porpoise may occur in Irish coastal waters, but Roaringwater Bay and Islands SAC is approximately 165.39 km from the Project and no evidence of functional connectivity with its QI population has been identified. The localised effects of oyster dredging in Tralee Bay would not extend to the population or supporting habitat of this SAC.	No - Likely significant effects can be excluded. Screened out at Stage 1.

Site	Qualifying Interest	Impact Mechanisms	S-P-R Assessment	Brought to Stage 2 (Y/N)
	<i>Lutra lutra</i> (Otter) [1355]	Above water visual and noise disturbance Effects on prey resources and the trophic food chain	Otter may occur in Irish coastal waters, but Roaringwater Bay and Islands SAC is approximately 165.39 km from the Project and no evidence of functional connectivity with its QI population has been identified. The localised effects of oyster dredging in Tralee Bay would not extend to the population or supporting habitat of this SAC.	No - Likely significant effects can be excluded. Screened out at Stage 1.
	<i>Halichoerus grypus</i> (Grey seal) [1364]	Underwater and above water noise disturbance Vessel presence and movement	Grey Seal may undertake extensive movements and may occur intermittently within Tralee Bay. No evidence has been identified linking Grey Seal using Tralee Bay with the QI population of Roaringwater Bay and Islands SAC. The Project would not affect haul-out, breeding, moulting or resting habitat within the SAC, and its localised disturbance effects would not extend to the site. Species mobility alone does not establish functional connectivity or an effect on the conservation objectives of the designated population. Likely significant effects can therefore be excluded at Stage 1 AA.	No - Likely significant effects can be excluded. Screened out at Stage 1.

4.5.2. Special Conservation Interests

The screening assessment considers each relevant Special Conservation Interest in view of the applicable site specific conservation objectives and the impact pathways identified for the Project. The assessment determines whether a credible source pathway receptor relationship exists and whether the Project, either alone or in combination with other plans or projects, is likely to have a significant effect on the relevant Special Conservation Interest. Where likely significant effects cannot be excluded on the basis of objective scientific information, the Special Conservation Interest is brought forward to Stage 2 Appropriate Assessment. Where no credible pathway exists, or where likely significant effects can be excluded in view of the conservation objectives, the Special Conservation Interest is screened out at Stage 1. **Table 4-9** below considers the S-P-R for screening assessment of bird species and the Project.

The screening process is informed by SCI foraging ranges. A review of non-seabird SCI foraging ranges are summarised in **Table 4-4**. Given the marine nature of the Project, the assessment also considered the potential for connectivity with seabird SCIs from other SPAs beyond the immediate vicinity of the project (*ex-situ*). This element of the screening process was informed by published data on species-specific foraging ranges (Thaxter *et al.*, 2012; Jovani *et al.*, 2016; Wakefield *et al.*, 2017; Woodward *et al.*, 2019; Woodward *et al.*, 2024) summarised in **Table 4-5**.

Table 4-9: Assessment of potential significant effects from the impact mechanisms to Special Conservation Interests (SCIs).

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
Tralee Bay Complex SPA (site code: 004188)	Whooper Swan (<i>Cygnus cygnus</i>) [A038]	Above-water visual and noise disturbance	Whooper Swan use was strongly associated with Lough Gill, with the NPWS supporting information identifying all recorded foraging there. The species is not dependent on the marine benthic prey resources affected by oyster dredging, and no credible above water disturbance pathway is identified between the proposed Inner or Outer dredge areas and its principal feeding area. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Light bellied Brent Goose feed principally on eelgrass and other intertidal vegetation. NPWS identifies feeding use at Annagh, Bealathaleen Creek and the Castlegregory area, with substantial roosting use at Blennerville. The Outer dredge area overlaps a small area of mapped <i>Zostera</i> and the fishery operates during the wintering period. Effects on feeding resources and above water disturbance of birds moving between feeding and roosting areas cannot be excluded. Likely significant effects cannot be excluded, and this SCI is brought forward to Stage 2 AA.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.
	Shelduck (<i>Tadorna tadorna</i>) [A048]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Shelduck feed in intertidal and shallow subtidal habitats. NPWS identifies repeated feeding use at Blennerville and use of Bealathaleen Creek, with roosting also recorded at Blennerville and Spa. Daylight dredging and vessel activity within the Inner Bay provide a credible pathway for visual and noise disturbance. Local effects on benthic prey resources also cannot be excluded. Likely significant effects cannot be excluded, and this SCI is brought forward to Stage 2 AA.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Wigeon (<i>Mareca penelope</i>) [A855]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Wigeon feed mainly on eelgrass, algae and other shallow water vegetation. NPWS identifies feeding use at Annagh, Derryquay and Bealathaleen Creek within the wider vegetated Inner Bay area. Given the species dependence on vegetated feeding habitat and the mapped interaction between the proposed dredge areas and <i>Zostera</i> , an effect on feeding resources and associated distribution cannot be excluded. Likely significant effects cannot be excluded, and this SCI is brought forward to Stage 2 AA.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.
	Teal (<i>Anas crecca</i>) [A052]	Above-water visual and noise disturbance	Teal feed and roost in intertidal and shallow subtidal habitats. NPWS identifies important feeding and roosting use of Blennerville, with further use of Bealathaleen Creek and Derryquay. Daylight vessel activity within the Inner Bay may temporarily displace birds from feeding or resting habitat during the wintering period. Likely significant effects cannot be excluded, and this SCI is brought forward to Stage 2 AA.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.
	Mallard (<i>Anas platyrhynchos</i>) [A053]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Mallard feed by dabbling and upending in shallow water. NPWS records feeding and roosting use at Bealathaleen Creek, Annagh, Blennerville and Spa, including subtidal feeding. Although the species has broad feeding requirements, birds using shallow Inner Bay waters may be exposed to above water visual and noise disturbance from dredging vessels. Likely significant effects cannot be excluded, and this SCI is brought forward to Stage 2 AA.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Pintail (<i>Anas acuta</i>) [A054]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Pintail use was concentrated principally at Annagh, with smaller numbers recorded at Blennerville and Barrow Harbour. NPWS also records roosting at Blennerville. Above water disturbance of birds using the Inner Bay cannot therefore be excluded. Likely significant effects cannot be excluded, and this SCI is brought forward to Stage 2 AA.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.
	Scaup (<i>Aythya marila</i>) [A062]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Tralee Bay Complex is identified as the most important site for Scaup in the Republic of Ireland. Scaup feed mainly on molluscs by diving in shallow subtidal water, generally at depths of 0.5-3.5 m, and were recorded feeding and roosting in inner-bay subtidal subsites. NPWS records feeding at Blennerville, Derryquay and Bealathaleen Creek, with subtidal resting also recorded at Annagh and Castlegregory. Both Inner and Outer dredging may interact with feeding habitat through effects on benthic prey resources, while vessel activity may cause temporary displacement. Likely significant effects cannot be excluded, and this SCI is brought forward to Stage 2 AA.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.
	Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Oystercatcher feed on intertidal bivalves and other invertebrates and are widely distributed across Tralee Bay. NPWS identifies important feeding use at Blennerville, Fenit, Castlegregory and Scraggan Bay, with notable roosting at Spa, Blennerville and Castlegregory. The broad availability of prey reduces dependence on individual prey patches, but disturbance of important feeding and roosting areas cannot be excluded. Likely significant effects cannot be excluded, and this SCI is brought forward to Stage 2 AA.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Ringed Plover (<i>Charadrius hiaticula</i>) [A137]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Ringed Plover are principally associated with exposed sandy intertidal and shoreline habitat. NPWS identifies important feeding use at Black Rock and within the Castlegregory and Scraggane Bay area. The defined dredging areas are predominantly subtidal and appear spatially separated from the principal sandy shoreline and tide-line feeding habitats used by Ringed Plover at Black Rock, Castlegregory and Scraggane Bay. Oyster dredging would not alter the intertidal prey resource used by the species. Having regard to the nature and location of the activity and the distribution of the principal feeding habitat, a pathway capable of resulting in a likely significant effect is not identified. Likely significant effects can be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Golden Plover (<i>Pluvialis apricaria</i>) [A140]	Above-water visual and noise disturbance	Golden Plover feed mainly in terrestrial habitats and use Tralee Bay principally for roosting. NPWS records very large roosting aggregations at Blennerville, including north of the channel. Effects on benthic prey resources are not considered relevant, but daylight vessel activity during the wintering period may disturb birds using this important roosting area. Likely significant effects cannot be excluded, and this SCI is brought forward to Stage 2 AA.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.
	Grey Plover (<i>Pluvialis squatarola</i>) [A141]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Grey Plover feed on intertidal invertebrates. NPWS identifies important feeding use at Spa and Blennerville and roosting use at Blennerville. Effects on prey resources are cannot be excluded at this stage, and above water visual and noise disturbance of feeding or roosting birds within the Inner Bay cannot be excluded. Likely significant effects cannot be excluded, and this SCI is brought forward to Stage 2 AA.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Lapwing (<i>Vanellus vanellus</i>) [A142]	Above-water visual and noise disturbance	Lapwing feed principally on lowland farmland and freshwater wetlands. Tralee's tidal flats were used mainly for roosting, with substantial intertidal feeding recorded only during a severe cold-weather event. Oyster dredging would not affect the species' principal feeding resources but Daylight dredging and vessel activity may disturb roosting birds during the wintering period. Likely significant effects cannot be excluded, and this SCI is brought forward to Stage 2 AA.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.
	Sanderling (<i>Calidris alba</i>) [A144]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Sanderling are strongly associated with sandy shorelines and tide line feeding habitat, with NPWS identifying Castlegregory, Scraggane Bay and Black Rock as the principal feeding areas. The proposed dredging areas comprise subtidal oyster grounds and do not overlap the sandy intertidal habitat on which the species depends. Sanderling were not recorded roosting during the surveys. Oyster dredging would not materially alter the principal prey resource or feeding habitat. Having regard to the spatial separation and nature of the activity, a pathway capable of resulting in a likely significant effect is not identified. Likely significant effects can be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Dunlin (<i>Calidris alpina alpina</i>) [A149]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Dunlin feed predominantly on exposed intertidal sediments and show a close spatial relationship between feeding areas and nearby roosts. NPWS identifies Blennerville as an important feeding and roosting area and records a substantial roost at Derrymore Island. Persistent loss of intertidal prey habitat is not predicted, but disturbance of feeding or roosting birds within the Inner Bay cannot be excluded. Likely significant effects cannot be excluded, and this SCI is brought forward to Stage 2 AA.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Black-tailed Godwit feed mainly on bivalves and polychaetes within muddy intertidal flats, with the principal Tralee feeding concentrations at Blennerville, Derryquay and the River Lee. They also use surrounding grassland. These feeding resources are not dependent on the subtidal oyster beds, and localised seasonal sediment effects would not materially alter their extent or availability. NPWS documents roosting sites at Blennerville. Above-water visual and noise disturbance cannot be excluded at Stage 1. Likely significant effects cannot be excluded, and this SCI is brought forward to Stage 2 AA.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.
	Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Bar tailed Godwit feed on intertidal invertebrates and were recorded by NPWS using Derryquay, Spa and Blennerville, with substantial roosting at Blennerville and Derrymore Island. The spatial relationship between these Inner Bay areas and winter daylight dredging means temporary displacement from feeding or roosting habitat cannot be excluded. Likely significant effects cannot be excluded, and this SCI is brought forward to Stage 2 AA.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.
	Curlew (<i>Numenius arquata</i>) [A160]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Curlew are widely distributed across Tralee Bay and feed on intertidal invertebrates as well as terrestrial prey. NPWS records feeding and roosting use at Blennerville, Annagh, Bealathaleen Creek and Scraggan Bay. The broad distribution reduces dependence on individual prey patches, but temporary disturbance of feeding or roosting birds associated with both dredging areas cannot be excluded. Likely significant effects cannot be excluded, and this SCI is brought forward to Stage 2 AA.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Redshank (<i>Tringa totanus</i>) [A162]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Redshank feed mainly on intertidal mudflat invertebrates. NPWS identifies repeated use of Blennerville, Annagh and Barrow Harbour, with roosting also recorded at Blennerville, Spa and Bealathaleen Creek. Significant persistent depletion of prey resources is not predicted, but above water disturbance of feeding and roosting birds within the Inner Bay cannot be excluded. Likely significant effects cannot be excluded, and this SCI is brought forward to Stage 2 AA.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.
	Turnstone (<i>Arenaria interpres</i>) [A169]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Turnstone forage on rocky intertidal shores and algal wrack for amphipods, insects and small molluscs. The Inner Bay dredge area overlaps the mapped Intertidal reef community used by this SCI, and the impact assessment could not exclude effects on the extent or quality of overlapping reef communities. The September to April season coincides with winter use of the SPA. Likely significant effects on supporting habitat and distribution cannot be excluded and this SCI is brought forward to Stage 2 AA.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.
	Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Black-headed Gull makes widespread use of intertidal and subtidal areas throughout Tralee Bay for feeding and resting, including locations spatially associated with the defined Inner and Outer dredging areas. Birds using these areas could be exposed to temporary disturbance from vessel movements and dredging operations. Changes to benthic habitat and associated prey within the dredging areas also provide an indirect feeding pathway. Given the spatial association between recorded use and the defined dredging areas, an S-P-R linkage has been identified. Likely significant effects cannot be excluded at Stage 1.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Common Gull (<i>Larus canus</i>) [A182]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Common Gull uses intertidal and subtidal areas within Tralee Bay for feeding and resting. Important use has been identified in the Castlegregory area, including feeding activity and resting on subtidal waters. This creates a particular spatial connection with the defined Outer dredging area off Castlegregory. Birds using this area could be exposed to temporary visual and noise disturbance from vessels and dredging operations. Localised changes to benthic habitat and associated prey also provide an indirect feeding pathway. An S-P-R linkage has therefore been identified and likely significant effects cannot be excluded at Stage 1.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.
	Wetlands and Waterbirds [A999]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Wetlands and Waterbirds [A999]: This SCI relates to the maintenance of the permanent area occupied by wetland habitat. Commercial oyster dredging is a seasonal activity within existing marine habitat and does not involve reclamation, infilling or permanent conversion of wetland habitat. Although temporary disturbance and effects on feeding and roosting functions may occur, these pathways are assessed through the individual bird SCIs. No reduction in the permanent wetland habitat area is anticipated and likely significant effects on this SCI can be excluded.	N - No credible pathway, screened out at Stage 1.
Dingle Peninsula SPA (site code: 004153)	Fulmar (<i>Fulmarus glacialis</i>) [A009]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project is approximately 0.73 km from the boundary of Dingle Peninsula SPA and lies within the extensive foraging range reported for Fulmar. This minimum separation relates to the SPA boundary and does not represent the distance to occupied Fulmar breeding cliffs, as the SPA also includes sand dune and other terrestrial habitats. NPWS identifies nesting Fulmar as widely distributed along the sea cliffs of the SPA, with notable numbers at Sybil Head, Dunquin and Reenbeg Point. The Project would not interact directly with nesting habitat. Fulmar forage across extensive marine areas and principally exploit pelagic and surface associated prey. Localised shallow benthic oyster dredging would not be expected to materially alter the distribution or availability of principal prey resources. Vessel activity associated with the established fishery would be temporary and localised and would not create a barrier between breeding cliffs and marine foraging waters. On this basis, the identified pathways are not considered capable of resulting in a significant effect on the breeding population or the relevant conservation objective attributes. Likely significant effects can be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Peregrine (<i>Falco peregrinus</i>) [A103]	Above-water visual and noise disturbance	The Project is 0.73 km from the SPA but is confined to marine dredging grounds. Peregrine depend on terrestrial or cliff nesting sites and avian prey resources. Oyster dredging would not affect occupied territories, nest sites, terrestrial prey availability or access to those resources. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1
	Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]	Above-water visual and noise disturbance	Chough use functionally linked habitat outside the SPA, including grazed coastal grassland, dune, machair and roost sites. The Project is confined to subtidal oyster grounds and would not affect these terrestrial habitats, nest sites or invertebrate prey resources. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1
Magharee Islands SPA (site code: 004125)	Storm Petrel (<i>Hydrobates pelagicus</i>) [A014]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project is 4.09 km from the SPA. Storm Petrel are pelagic, nocturnal foragers and the Project area does not provide important colony or near-colony habitat. Oyster dredging would not materially affect their planktonic or small pelagic prey and the September to April season is predominantly outside the breeding period. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1
	Shag (<i>Phalacrocorax aristotelis</i>) [A018]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project is approximately 4.09 km from Magharee Islands SPA and lies within the mean breeding season foraging range identified by NPWS for Shag. The site specific conservation objectives identify forage spatial distribution, extent, abundance and availability as an attribute supporting the designated breeding population. Shag forage predominantly on fish taken near the seabed or at intermediate depths and the shallow coastal waters of Tralee Bay provide potentially suitable foraging habitat. Dredging and associated vessel activity have the potential to cause localised disturbance of feeding birds or demersal fish prey. In the absence of evidence demonstrating that the defined dredging areas are not utilised by the Magharee Islands population, a functional Source Pathway	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
			Receptor relationship cannot be excluded. Likely significant effects cannot therefore be excluded at Stage 1.	
	Barnacle Goose (<i>Branta leucopsis</i>) [A045]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Barnacle Goose feed principally on terrestrial grassland and coastal vegetation associated with islands and shoreline areas. The Project would not affect these feeding or roosting habitats and no regular dependence on the subtidal dredge grounds was identified. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Common Gull (<i>Larus canus</i>) [A182]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The defined Outer dredging area is approximately 4.09 km from Magharee Islands SPA and lies within the reported foraging range of Common Gull. Concentrations of Common Gull occur in the Castlegregory area, where birds feed and rest on subtidal waters spatially associated with the Outer dredging area. The available information does not establish whether these birds form part of the Magharee Islands breeding population, but it does not provide evidence separating them from that population. Given the proximity of the SPA, the mobility and foraging range of the species, the documented local use of the Castlegregory area and the potential for disturbance or localised effects on feeding habitat, functional connectivity with the Magharee Islands SCI population cannot be excluded. An S-P-R linkage is therefore identified on a precautionary basis.	Yes - Likely significant effects cannot be excluded. Brought forward for Stage 2.
	Common Tern (<i>Sterna hirundo</i>) [A193]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project is approximately 4.09 km from Magharee Islands SPA and does not overlap the breeding colony or associated roosting habitat. Common Tern is migratory and feeds mainly on fish. Although the dredging season includes April and September, no regular use of the defined dredging areas by the Magharee population has been identified, and benthic oyster dredging would not materially affect its principal fish prey. A viable S-P-R linkage has not been identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Arctic Tern (<i>Sterna paradisaea</i>) [A194]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project is approximately 4.09 km from Magharee Islands SPA and does not overlap the breeding colony or associated roosting habitat. Arctic Tern is a long-distance migrant that feeds primarily on marine fish, crustaceans and insects. No regular use of the defined dredging areas by the Magharee population has been identified, and the localised seabed disturbance and vessel activity would not affect the colony or its supporting prey resources. A viable S-P-R linkage has not been identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Little Tern (<i>Sternula albifrons</i>) [A885]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Little Tern is designated as a breeding SCI of Magharee Islands SPA. Its breeding-season foraging activity is generally concentrated in relatively shallow inshore waters close to the colony. The available mapped information does not identify the defined Inner or Outer dredging areas as regular or functionally important feeding or resting areas for the Magharee Islands population. The Project does not overlap the breeding colony or identified supporting habitat within the SPA. No regular movement into the dredging areas or other population-specific connection has been identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
Castlemaine Harbour SPA (site code: 004029)	Red-throated Diver (<i>Gavia stellata</i>) [A001]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project is 9.43 km from the SPA, marginally beyond the maximum range presented in the report. The Castlemaine supporting document recorded the species using subtidal habitat within Castlemaine Harbour. No regular use of Tralee Bay by the Castlemaine population or material effect on its principal fish prey was demonstrated. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Cormorant (<i>Phalacrocorax carbo</i>) [A017]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project lies within the maximum range presented above, but range overlap does not establish regular use by the Castlemaine population. The supporting NPWS document records foraging within Castlemaine Harbour and no colony, roost or movement evidence links that SCI population to the Tralee dredge grounds. A material effect on fish prey was not identified. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Light bellied Brent Goose is designated as a wintering SCI of Castlemaine Harbour SPA. The designated population uses intertidal feeding and roosting habitats within Castlemaine Harbour, including areas supporting aquatic vegetation. Although wintering geese are capable of movements between feeding and roosting areas, the Project is confined to Inner and Outer Tralee Bay approximately 9.43 km from the SPA and does not affect the supporting habitats within Castlemaine Harbour. A limited mapped overlap between the Tralee Bay licensed dredging areas and <i>Zostera</i> habitat does not, in itself, establish that this vegetation forms part of the supporting resource used by the designated Castlemaine Harbour population. No evidence has been identified of regular or functionally important use of the Tralee Bay dredging areas by that population. The potential occurrence of individual birds within Tralee Bay is therefore not considered sufficient to establish a credible pathway by which the Project could affect the designated population or the supporting habitat upon which it depends. Likely significant effects can be excluded.	N - No credible pathway, screened out at Stage 1.
	Wigeon (<i>Mareca penelope</i>) [A855]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project is outside Castlemaine Harbour. The supporting NPWS document records the species using feeding and roosting areas within Castlemaine, while the report provides no evidence of regular movement to Tralee Bay. The project distance is near the upper end of the range presented for Wigeon. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Mallard (<i>Anas platyrhynchos</i>) [A053]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Mallard is a wintering SCI of Castlemaine Harbour SPA. The Project is located approximately 9.43 km from the SPA and does not overlap supporting habitat within Castlemaine Harbour. NPWS records indicate that Mallard use is concentrated within the SPA, and no evidence has been identified that the Inner or Outer Tralee Bay dredging areas form a regular or functionally important supporting area for the designated population. A credible Source Pathway Receptor relationship has therefore not been identified and likely significant effects can be excluded.	N - No credible pathway, screened out at Stage 1.
	Pintail (<i>Anas acuta</i>) [A054]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Pintail is a wintering SCI of Castlemaine Harbour SPA. NPWS records indicate a localised distribution within the SPA, with principal use concentrated in a small number of subsites. Although the species is capable of movements between feeding and roosting areas, no evidence has been identified that the Tralee Bay dredging areas are regularly used by, or provide functionally important habitat for, the designated Castlemaine Harbour population. A credible Source Pathway Receptor relationship has therefore not been identified, and likely significant effects can be excluded.	N - No credible pathway, screened out at Stage 1.
	Scaup (<i>Aythya marila</i>) [A062]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Scaup is a wintering SCI of Castlemaine Harbour SPA. NPWS surveys recorded a localised distribution within Castlemaine Harbour, with foraging concentrated in shallow subtidal habitat within the SPA. Although Scaup are mobile and may move between coastal feeding areas, no evidence has been identified that the Tralee Bay dredging areas provide a supporting resource for the designated Castlemaine Harbour population. Scaup occurring within Tralee Bay are considered separately as an SCI of Tralee Bay Complex SPA. A credible Source Pathway Receptor relationship has therefore not been identified, and likely significant effects can be excluded.	N - No credible pathway, screened out at Stage 1.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Common Scoter (<i>Melanitta nigra</i>) [A065]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Common Scoter primarily uses shallow marine feeding habitat within Castlemaine Harbour, where suitable benthic prey is available. Castlemaine Harbour SPA is approximately 9.43 km from the Project and is spatially separate from the defined Inner and Outer Tralee Bay dredging areas. No regular movement of the Castlemaine Harbour SCI population into Tralee Bay has been demonstrated. The Project would not overlap or affect the shallow marine feeding habitat supporting Common Scoter within Castlemaine Harbour. Seabed disturbance, changes to benthic prey and vessel-related disturbance would remain localised within Tralee Bay and would not extend into the SPA. The project distance relative to the reported foraging range supports this conclusion but is not relied upon as the sole basis for exclusion. In the absence of population connectivity or exposure of supporting habitat within Castlemaine Harbour, no viable S-P-R linkage has been identified. Likely significant effects on this species can be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project distance falls close to the median range presented in the report. The Castlemaine supporting document identifies feeding and roosting areas within the SPA, but no regular movement of the Castlemaine population to Tralee was demonstrated. Occurrence of Oystercatcher in Tralee does not identify those birds as part of the Castlemaine SCI population. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Ringed Plover (<i>Charadrius hiaticula</i>) [A137]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project is 9.43 km from the SPA, beyond the range presented for Ringed Plover. The supporting document records use of intertidal feeding and roosting habitat within Castlemaine, and no regular movement of that population to Tralee was demonstrated. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Sanderling (<i>Calidris alba</i>) [A144]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Movements between wintering sites can extend beyond the core range, but this does not demonstrate regular use of Tralee by the Castlemaine population. The supporting NPWS document records feeding and roosting within Castlemaine and no site-specific movement evidence links those birds to the dredge grounds. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project distance is at the upper end of the range presented for Bar-tailed Godwit. The supporting document records extensive suitable feeding habitat within Castlemaine and no regular movement of that SPA population to Tralee Bay was demonstrated. Species presence in Tralee is not sufficient to identify population connectivity. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Redshank (<i>Tringa totanus</i>) [A162]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project is 9.43 km from the SPA, beyond the range presented for Redshank. The supporting document records feeding and roosting within Castlemaine Harbour and no regular movement of that population to Tralee was demonstrated. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Greenshank (<i>Tringa nebularia</i>) [A164]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project is 9.43 km from the SPA, beyond the maximum range presented for Greenshank. The supporting document records feeding and roosting within Castlemaine Harbour and no regular movement of that population to Tralee was demonstrated. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Turnstone (<i>Arenaria interpres</i>) [A169]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project is 9.43 km from the SPA, beyond the core range presented for Turnstone. The supporting document records use of shoreline habitat within Castlemaine and no regular movement of that population to Tralee was demonstrated. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project is confined to subtidal oyster grounds in Tralee Bay. Chough depend on terrestrial coastal grassland, dune, cliff and roosting habitats. The Project would not affect these habitats, nest sites or terrestrial invertebrate prey within or functionally linked to Castlemaine Harbour SPA. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Wetlands & Waterbirds [A999]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	A999 is a wetland habitat and waterbird assemblage feature rather than an individual species. The Project is confined to Tralee Bay and would not cause land claim, infilling or permanent loss of subtidal, intertidal or supratidal wetland area within Castlemaine Harbour SPA. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (site code: 004161)	Hen Harrier (<i>Circus cyaneus</i>) [A082]	Above-water visual and noise disturbance	The Project is 9.85 km from the SPA and is confined to marine dredging grounds. Hen Harrier depend on terrestrial upland, heath, bog, grassland and forestry habitats and associated terrestrial prey. Oyster dredging would not affect those habitats or resources. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
Kerry Head SPA (site code: 004189)	Fulmar (<i>Fulmarus glacialis</i>) [A009]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project lies within the foraging range presented in the report, but range alone does not establish regular use by the Kerry Head population. Fulmar feed mainly on pelagic and surface prey. Oyster dredging would not affect the breeding cliffs or materially alter the species' principal prey, and the fishing vessels would not create a barrier to marine waters. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]	Above-water visual and noise disturbance	The Project is confined to subtidal oyster grounds and would not affect the coastal grassland, cliff, dune or roosting habitats used by the Kerry Head Chough population. No pathway to terrestrial invertebrate prey or nest sites was identified. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
Iveragh Peninsula SPA (site code: 004154)	Fulmar (<i>Fulmarus glacialis</i>) [A009]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project lies within the broad foraging range presented in the report, but no regular use by the Iveragh population was demonstrated. Fulmar feed mainly on pelagic and surface prey. Oyster dredging would not affect the breeding cliffs or materially alter principal prey resources. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Peregrine (<i>Falco peregrinus</i>) [A103]	Above-water visual and noise disturbance	The Project is 21.29 km from the SPA and is confined to marine dredging grounds. Oyster dredging would not affect Peregrine nesting territories, cliff or terrestrial habitat, or availability of avian prey within the SPA. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Kittiwake (<i>Rissa tridactyla</i>) [A188]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project lies within the foraging range presented in the report, but no regular use by the Iveragh breeding population was demonstrated. The Project season is predominantly outside the breeding period, and benthic oyster dredging would not materially affect the species' principal pelagic fish prey or breeding cliffs. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Guillemot (<i>Uria aalge</i>) [A199]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project may fall within the broad range presented, but no regular use by the Iveragh breeding population was demonstrated. Guillemot are offshore pursuit divers and benthic oyster dredging in Tralee Bay would not materially affect their principal pelagic fish prey or breeding cliffs. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]	Above-water visual and noise disturbance	The Project is confined to subtidal oyster grounds and would not affect the coastal grassland, cliff, dune or roosting habitats used by the Iveragh Chough population. No pathway to terrestrial invertebrate prey or nest sites was identified. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1
Killarney National Park SPA (site code: 004038)	Merlin (<i>Falco columbarius</i>) [A098]	Above-water visual and noise disturbance	The Project is 25.5 km from the SPA and is confined to marine dredging grounds. Merlin depend on terrestrial upland nesting and foraging habitat and small terrestrial or aerial bird prey. Oyster dredging would not affect these habitats or resources. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1
	Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project is 25.5 km from the SPA and lies outside the range presented in the report. The SCI population depends on terrestrial and freshwater feeding and roosting habitat within the Killarney area. Oyster dredging in Tralee Bay would not affect those resources. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
Loop Head SPA (site code: 004119)	Kittiwake (<i>Rissa tridactyla</i>) [A188]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project may fall within the broad range presented in the report, but no regular use by the Loop Head population was demonstrated. The Project season is predominantly outside the breeding period, and oyster dredging would not materially affect principal pelagic fish prey or breeding cliffs. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1
	Guillemot (<i>Uria aalge</i>) [A199]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project may fall within the broad range presented in the report, but no regular use by the Loop Head population was demonstrated. Guillemot are offshore pursuit divers and benthic oyster dredging would not materially affect principal pelagic fish prey or breeding cliffs. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1
Blasket Islands SPA (site code: 004008)	Fulmar (<i>Fulmarus glacialis</i>) [A009]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project lies within the broad foraging range presented, but no regular use by the Blasket population was demonstrated. Fulmar feed mainly on pelagic and surface prey. Oyster dredging would not affect breeding cliffs or materially alter principal prey resources. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Manx Shearwater (<i>Puffinus puffinus</i>) [A013]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project may fall within the broad range presented, but no regular use by the Blasket population was demonstrated. Manx Shearwater are pelagic pursuit feeders and oyster dredging in shallow Tralee Bay would not materially affect principal fish prey or nesting habitat. I-WeBS absence was not relied upon because open-sea seabirds are incompletely monitored. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1
	Storm Petrel (<i>Hydrobates pelagicus</i>) [A014]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	No regular use of Tralee Bay by the Blasket population was demonstrated. Storm Petrel are pelagic, nocturnal foragers and oyster dredging would not materially affect their planktonic or small pelagic prey or nesting habitat. I-WeBS absence was not relied upon because open-sea seabirds are incompletely monitored. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1
	Shag (<i>Phalacrocorax aristotelis</i>) [A018]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project is 36.92 km from the SPA and lies outside the mean range presented. No regular use by the Blasket breeding population was demonstrated and benthic oyster dredging would not materially affect the species' principal fish prey or nesting habitat. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project lies within the broad range presented in the report, but occurrence of Herring Gull in Tralee does not attribute those birds to the Blasket population. The Project season is predominantly outside the breeding period and the species' flexible diet does not establish a material dependence on the dredge grounds. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Herring Gull (<i>Larus argentatus</i>) [A184]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	Herring Gull occurs within Tralee Bay, but those records do not attribute the birds to the Blasket Islands SPA breeding population. The Project is approximately 36.92 km from the SPA and operates predominantly outside the breeding period. Oyster dredging would not affect nesting habitat and no regular or functionally important dependence of the Blasket population on the dredging areas has been demonstrated. A credible source-pathway-receptor relationship capable of affecting the conservation objectives of the SPA has not been identified. Likely significant effects can therefore be excluded. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Kittiwake (<i>Rissa tridactyla</i>) [A188]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project may fall within the broad range presented in the report, but no regular use by the Blasket population was demonstrated. The Project season is predominantly outside the breeding period, and oyster dredging would not materially affect principal pelagic fish prey or breeding cliffs. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Arctic Tern (<i>Sterna paradisaea</i>) [A194]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project is 36.92 km from the SPA and lies outside the mean range presented in the report. The Project season is predominantly outside the breeding period, no regular use by the Blasket population was demonstrated and oyster dredging would not materially affect principal small-fish prey. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Razorbill (<i>Alca torda</i>) [A200]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project may fall within the broad range presented in the report, but no regular use by the Blasket population was demonstrated. Razorbill are offshore pursuit divers and oyster dredging would not materially affect principal pelagic fish prey or breeding habitat. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Puffin (<i>Fratercula arctica</i>) [A204]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project may fall within the broad range presented in the report, but no regular use by the Blasket population was demonstrated. Puffin are offshore pursuit divers and oyster dredging would not materially affect principal pelagic fish prey or nesting habitat. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Chough (<i>Pyrhocorax pyrrhocorax</i>) [A346]	Above-water visual and noise disturbance	The Project is confined to subtidal oyster grounds and would not affect the coastal grassland, cliff, dune or roosting habitats used by the Blasket Chough population. No pathway to terrestrial invertebrate prey or nest sites was identified. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
Puffin Island SPA (site code: 004003)	Fulmar (<i>Fulmarus glacialis</i>) [A009]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project lies within the broad foraging range presented, but no regular use by the Puffin Island population was demonstrated. Fulmar feed mainly on pelagic and surface prey and oyster dredging would not affect breeding cliffs or materially alter principal prey resources. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Manx Shearwater (<i>Puffinus puffinus</i>) [A013]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project may fall within the broad range presented in the report, but no regular use by the Puffin Island population was demonstrated. Manx Shearwater are pelagic pursuit feeders and oyster dredging would not materially affect principal fish prey or nesting habitat. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Storm Petrel (<i>Hydrobates pelagicus</i>) [A014]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	No regular use of Tralee Bay by the Puffin Island population was demonstrated. Storm Petrel are pelagic, nocturnal foragers and oyster dredging would not materially affect planktonic or small pelagic prey or nesting habitat. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project lies within the broad range presented in the report, but occurrence of Lesser Black-backed Gull in Tralee does not attribute those birds to the Puffin Island population. The Project season is predominantly outside the breeding period and the species' flexible diet does not establish a material dependence on the dredge grounds. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.
	Razorbill (<i>Alca torda</i>) [A200]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project may fall within the broad range presented in the report, but no regular use by the Puffin Island population was demonstrated. Razorbill are offshore pursuit divers and oyster dredging would not materially affect principal pelagic fish prey or breeding habitat. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.

Site	SCIs	Impact Mechanism	S-P-R Assessment	Brought to Stage 2 (Y/N)
	Puffin (<i>Fratercula arctica</i>) [A204]	Effects on prey resources and the trophic food chain Above-water visual and noise disturbance	The Project may fall within the broad range presented in the report, but no regular use by the Puffin Island population was demonstrated. Puffin are offshore pursuit divers and oyster dredging would not materially affect principal pelagic fish prey or nesting habitat. A viable S-P-R linkage to the conservation objective was not identified. Likely significant effects can therefore be excluded at Stage 1 AA.	N - No credible pathway, screened out at Stage 1.

4.6. Plans or Projects that Might Act In-Combination

As outlined in above the obligation to undertake AA under the 2011 Birds and Natural Habitats Regulations derives from the Habitats Directive. Regulation 42(1) of the 2011 Regulations requires that:

A screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site. It is therefore required that the potential impacts of the proposed Project be considered in combination with other relevant plans or projects. Given the nature of the proposed activities associated with the Project, the potential project impact mechanisms (or sources of impact) are:

1. Physical habitat disturbance
2. Increased suspended sediments and smothering
3. Impacts on benthic community structure
4. Effects on prey resources and the trophic food chain
5. Above water visual and noise disturbance
6. Underwater noise disturbance

The assessment of potential in-combination effects considers other plans and projects that may result in significant effects to QIs and SCIs of SACs and SPAs. To inform the assessment of potential in-combination effects a review of consent applications for projects in the vicinity of the proposed Project included on the following websites was completed in September 2026:

- DHPLG – EIA Portal
- Kerry County Council – Planning
- An Comisiún Pleanála
- Aquaculture Information Management System (AQUAMIS) by DAFM
- Irelands Marine Atlas
- MARA Licence Applications (MACs and MULs)

4.6.1. Threats and Pressures

The Tralee Bay Complex SPA supports several bird species which can be impacted by threats and pressures identified in the Natura 2000 Standard Data Form (**Table 4-10**).

Table 4-10: Natura 2000 Standard Data Form for Tralee Bay Complex SPA threats and pressures.

Rank	Threats and Pressures [code]	*Occurrence	Relevance to Tralee Bay
Medium	Fertilisation [A08]	o	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay Complex SPA as a site-level pressure with potential relevance to estuarine and coastal habitats.
Medium	Grazing [A04]	b	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay Complex SPA as a site-level pressure with potential relevance to estuarine and coastal habitats.
High	Walking, horse-riding, and non-motorised vehicles [G01.02]	i	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay Complex SPA as a site-level pressure with potential relevance to estuarine and coastal habitats.
Medium	Removal of beach materials [C01.01.02]	i	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay Complex SPA as a site-level pressure with potential relevance to estuarine and coastal habitats.
High	Urbanised areas, human habitation [E01]	o	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay Complex SPA as a site-level pressure with potential relevance to estuarine and coastal habitats.
Low	Nautical sports [G01.01]	i	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay Complex SPA as a site-level pressure with potential relevance to estuarine and coastal habitats.
High	Walking, horse-riding, and non-motorised vehicles [G01.02]	i	Identified in the positive impacts of the Natura 2000 Standard Data Form for Tralee Bay Complex SPA as a site-level pressure with potential relevance to estuarine and coastal habitats.
Medium	Grazing [A04]	b	Identified in the positive impacts of the Natura 2000 Standard Data Form for Tralee Bay Complex SPA as a site-level pressure with potential relevance to estuarine and coastal habitats.

*Occurrence: **i** = inside, **o** = outside, **b** = both

The Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC identifies a variety of pressures affecting estuarine habitats and QI as seen below in **Table 4-11**.

Table 4-11: Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC threats and pressures.

Rank	Threats and Pressures [code]	*Occurrence	Relevance to Tralee Bay
Medium	Removal of hedges and copes or scrub [A10.01]	i	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Medium	Sylviculture, forestry [B]	o	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Low	Leisure fishing [F02.03]	i	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
High	Other human intrusions and disturbances [G05]	i	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Medium	Dispersed habitation [E01.03]	o	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Low	Nautical sports [G01.01]	i	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Medium	Grazing [A04]	i	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Low	Hunting [F03.01]	i	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.

Rank	Threats and Pressures [code]	*Occurrence	Relevance to Tralee Bay
Low	Golf course [G02.01]	i	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Medium	Golf course [G02.01]	o	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Low	Industrial or commercial areas [E02]	o	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Low	Sand and gravel extraction [C01.01]	i	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Medium	Grazing [A04]	o	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Medium	Fertilisation [A08]	o	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Medium	Interspecific floral relations [K04]	i	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Medium	Marine and Freshwater Aquaculture [F01]	i	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.

Rank	Threats and Pressures [code]	*Occurrence	Relevance to Tralee Bay
Low	Disposal of household / recreational facility waste [E03.01]	i	Identified in the negative impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Medium	Golf course [G02.01]	o	Identified in the positive impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Low	Hunting [F03.01]	i	Identified in the positive impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Low	Industrial or commercial areas [E02]	o	Identified in the positive impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Medium	Grazing [A04]	o	Identified in the positive impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Low	Leisure fishing [F02.03]	i	Identified in the positive impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.
Medium	Sylviculture, forestry [B]	o	Identified in the positive impacts of the Natura 2000 Standard Data Form for Tralee Bay and Magharees Peninsula, West to Cloghane SAC as a site-level pressure with potential relevance to estuarine and coastal habitats.

Occurrence: **i** = inside, **o** = outside, **b** = both

4.6.2. Plans and projects

A review of publicly available planning information was undertaken with regard to the portals identified in **section 4.6**, identify permitted, proposed and under-construction developments within the wider Tralee Bay area. Plans and projects have been summarised below in **Table 4-12** including a detailed S-P-R assessment.

The Kerry County Development Plan 2022 to 2028, as varied by Variation No. 1, provides the statutory land use planning framework for County Kerry and the Tralee Municipal District, including Fenit, Blennerville and Tralee. The Plan contains objectives supporting the sustainable development of the marine and aquaculture sectors, marine tourism and recreation, port and harbour infrastructure, wastewater infrastructure and the continued development and maintenance of Fenit Port. Relevant objectives include support for maintenance dredging and sediment removal at ports and harbours, increased maritime and leisure activity at Fenit, development of water based recreation and the upgrading of wastewater infrastructure. Of particular relevance to commercial oyster dredging is KCDP 9-72 to KCDP 9-76 which supports sustainable development of marine and aquaculture activities, use of port facilities for fisheries and associated industries and, protection of water quality and habitat needed to safeguard fisheries.

- KDCP 9-75: Support and promote the sustainable development of the marine and aquaculture sectors.
- KCDP 9-76: Facilitate and support aquaculture developments where the cumulative effects of existing and proposed aquaculture developments will not have a significant negative effects on the visual amenity of the area.
- KCDP 9-77: Support the sustainable use of existing port facilities for the catchments and processing of fish as an economic activity that contributes to the food industry in the County.
- KCDP 9-78: Support added-value marine and freshwater foods and service industries in a sustainable manner and at appropriate locations where they comply with the general policies and development management standards of this plan.
- KCDP 9-79: Support the protection of water quality, key habitat, and other natural resource requirements necessary to safeguard coastal, estuarine and freshwater fisheries.

Ireland's draft National Nature Restoration Plan has been prepared under Regulation (EU) 2024/1991. The published working draft addresses the restoration of marine habitats, including seagrass beds, shellfish beds and soft sediment habitats. Its assessment of marine habitat condition combines available habitat data with information on pressures, including fishing and seabed disturbance. Measures to restore shellfish beds could improve the extent and condition of native oyster habitat, including *Ostrea edulis* dominated community where such measures are implemented. Tralee is identified among vulnerable bays in a general discussion of coastal restoration and climate resilience. The draft states that the identification of precise marine restoration

areas and associated measures will be phased as habitat mapping, condition assessments and pressure data are refined (DHLGH, 2026).

The Project would authorise native oyster dredging for ten years within defined areas of Inner Tralee Bay, between Fenit and Spa, and Outer Tralee Bay, off Castlegregory. Dredging would occur between September and April and has the potential to interact with benthic communities through seabed contact and associated disturbance. The mapped proposed dredge areas include *Ostrea edulis* dominated community in both parts of the bay and a *Zostera* dominated community complex in Outer Tralee Bay.

The draft Plan therefore concerns habitats and pressures relevant to the Project and could benefit native oyster habitat if restoration measures were subsequently implemented in Tralee Bay. It does not propose an increase in fishing effort or an expansion of the licensed oyster dredging areas. It also does not identify a restoration measure in either proposed dredge area, specify an activity elsewhere in Tralee Bay with a pathway to those areas, or establish the location, method and timing of a measure capable of acting with the licensed dredging on a relevant conservation objective. Its national pressure assessment does not itself constitute an additional physical pressure in Tralee Bay. On the information available, likely significant effects arising from the Project in combination with an identifiable measure in the draft Plan can be excluded at Stage 1. The draft Plan is screened out as a separate source of in-combination effects and is not retained for Stage 2.

The licensed commercial native oyster fishery is relevant to these objectives as an established marine fisheries activity within Tralee Bay. The fishery is managed by Tralee Oyster Fisheries Society Limited and operates within defined fishing areas in the bay, with vessels accessing the fishing grounds from Fenit Harbour. The activity is consistent with the Plan objectives supporting the sustainable development of the marine and fisheries sectors and the sustainable use of existing port infrastructure. The protection of water quality, key habitats and other natural resources identified under KCDP 9-79 is also directly relevant to the continued sustainability of the native oyster fishery and to the ecological receptors considered in this assessment.

4.6.3. Aquaculture

The Project is located within the area subject to Fishery Order T06 004, under which Tralee Oyster Fisheries Society Limited holds the exclusive right to deposit, propagate, dredge, fish for and take oysters within the defined fishery area. A review of available aquaculture licensing information identified no separate aquaculture developments within the Project area that would give rise to an additional source of seabed disturbance, sediment resuspension or vessel activity pressure acting in combination with the licensed native oyster dredging. No additional in combination pathway associated with aquaculture has therefore been identified, and likely significant effects arising from interaction with other aquaculture activities can be excluded.

4.6.4. Initiatives

The Tralee Bay Marine Biodiversity Restoration Project is a €7.9 million, five-year initiative funded and overseen by the National Parks and Wildlife Service and led by University College Cork, with partners including Tralee Oyster Society and Tralee Bay Hatchery. Based in Tralee Bay Nature Reserve, it aims to restore and expand eelgrass meadows and native oyster beds. The announced objectives include increasing the area and distribution of native oyster beds through development of a consistent oyster seed supply chain. The project was expected to commence in August 2026 and continue until 2031.

These objectives are intended to improve the condition and distribution of marine habitats relevant to the proposed oyster dredging. The published information does not identify restoration work areas, methods or the timing of individual activities. Spatial or temporal separation from dredging therefore cannot be assumed. Equally, the announcement does not identify a specific restoration activity or additional adverse pressure that could act with dredging on a relevant European site conservation objective. On the information available, likely significant in-combination effects from the restoration project are not identified, and it is screened out as a separate source of effects at Stage 1. If NPWS or UCC releases a work programme identifying restoration within or adjacent to the proposed dredging areas, the potential for in-combination effects should be reassessed using the locations, methods and timing.

4.6.5. Navigational and marine traffic

A review of Ireland's Marine Atlas and European Marine Observation and Data Network vessel density data indicates that Tralee Bay does not contain designated commercial shipping lanes or scheduled ferry routes and that commercial vessel traffic within the bay is limited. Existing marine traffic provides a potential common pathway with the Project through vessel presence, above water disturbance and underwater noise. However, the Project comprises the operation of small fishing vessels within defined oyster fishing grounds, with vessels accessing the fishing areas from the existing facilities at Fenit Harbour. Having regard to the low level of commercial vessel activity within Tralee Bay, the absence of regular commercial shipping or ferry routes through the dredging areas and the spatially localised nature of oyster dredging operations, no credible additive disturbance effect has been identified that could result in likely significant effects on the relevant QIs or SCIs. Likely significant effects arising in combination with existing navigational and marine traffic can therefore be excluded.

4.6.6. Conclusions

Having regard to the assessments in **Table 4-12**, likely significant effects from the Project in combination with the identified plans and projects can be excluded at Stage 1 on the information available. None are retained

for detailed in-combination assessment at Stage 2 Appropriate Assessment. The Tralee Bay Marine Biodiversity Restoration Project and Ireland's draft National Nature Restoration Plan are screened out as separate sources of in-combination effects on the information currently available.

Table 4-12: Assessment of potential in-combination effects projects within the Tralee Bay Project area.

Website	Project Details	File Reference	Date Application Received	Assessment of Potential In-Combination Effects	Conclusion
MARA / Kerry County Council	Fenit Harbour maintenance dredging and disposal at sea under Foreshore Licence FS007041 and EPA Dumping at Sea Permit S0007 03. The foreshore authorisation remains extant until 22 March 2029. The EPA permit authorises annual maintenance dredging, with up to 1,000,000 tonnes permitted over the eight year permit period and annual limits of 150,000 tonnes, except for one year in which up to 250,000 tonnes is permitted.	FS007041 / EPA S0007-03	13/06/2019 (S007-03) 19/10/2019 (FS007041)	Maintenance dredging and disposal at sea at Fenit Harbour have the potential to result in temporary sediment resuspension and deposition, localised benthic disturbance, vessel activity and underwater noise within Tralee Bay. However, these activities have operated alongside the commercial native oyster fishery for a number of years and were subject to Appropriate Assessment prior to authorisation. The EPA assessment for Permit S0007 03 specifically considered the potential for in combination effects with oyster fishing and concluded that no significant in combination effect would arise, having regard to the temporary and localised nature of the activities and the requirement that maintenance dredging and disposal do not coincide with oyster dredging operations. The Foreshore Licence Appropriate Assessment similarly considered oyster fishing in inner Tralee Bay and concluded that no adverse in combination effects on European site integrity would arise. As the current Project represents the continuation of the existing commercial native oyster dredging activity and does not involve an increase in its spatial extent or intensity, no additional source pathway receptor interaction has been identified that would alter the conclusions of those assessments. Likely significant in combination effects are therefore not considered to arise and the Fenit Harbour maintenance dredging and disposal activity is screened out from further assessment.	No likely significant in combination effects are predicted, having regard to the existing authorisation, temporal restrictions and previous AA conclusions. Screened out at Stage 1.
MARA Licence Applications	Fenit wastewater treatment plant marine area consent application.	MAC260028	11/09/2026	The proposed wastewater treatment outfall location is west of fenit harbour and has no spatial overlap with the proposed dredging areas. There is no in-combination pathway identified.	No likely significant in combination effects are predicted, having regard to the existing authorisation, temporal restrictions and previous AA conclusions.

Website	Project Details	File Reference	Date Application Received	Assessment of Potential In-Combination Effects	Conclusion
					Screened out at Stage 1.
MARA Licence Applications	Tralee Golf Club coastal protection works at Barrow Harbour. A grant of marine area consent, subject to conditions, was determined on 23 March 2026.	MAC240033	17/07/2024	Coastal protection works comprise the placement of geotextile, quarry run and rock armour, together with repair and adjustment of existing rock armour. Only a limited component of the works occurs within the maritime area. The Maritime Area Regulatory Authority assessment identified spatial overlap with the Tralee Oyster Fisheries Society Fishery Order T06-004 and concluded that the proposed maritime usage did not conflict with the oyster fishery, having regard to the nature of the habitat within the works area. The works are spatially discrete from the oyster dredging grounds and any construction related disturbance would be localised and temporary. No credible pathway has been identified through which the coastal protection works could act in combination with the Project to result in likely significant effects on the relevant Qualifying Interests or Special Conservation Interests	No likely significant in combination effects are predicted having regard to the limited maritime footprint, nature of the affected habitat and absence of a relevant interaction with the oyster fishery. Screened out at Stage 1.
NPWS / University College Cork	Tralee Bay Marine Biodiversity Restoration Project. A €7.9 million, five-year project announced in August 2026, directed by NPWS with a consortium including University College Cork, Tralee Oyster Society and Tralee Hatchery.	-	-	The Tralee Bay Marine Biodiversity Restoration Project aims to restore eelgrass meadows and native oyster beds. Published information does not identify specific works, locations or activities that would add an adverse pressure capable of acting in combination with the proposed oyster dredging on a European site conservation objective. No likely significant in-combination effect is identified on the information available, and the restoration project is screened out as a separate source of effects. This conclusion will be reviewed if NPWS or UCC releases a work programme identifying restoration within or adjacent to the proposed dredging areas.	No likely significant in combination effects are predicted given the current project information. Screened out at Stage 1.

Website	Project Details	File Reference	Date Application Received	Assessment of Potential In-Combination Effects	Conclusion
Kerry County Council	Fenit water sports facility, developed following an investment of approximately €1.3 million to support year-round water-based activities, with changing, toilet, storage and wash-down facilities.	Progressed by Kerry County Council as a Part 8 local authority development.	-	While construction had the potential to result in localised disturbance, temporary increases in human activity and an increased risk of accidental pollution, the facility itself is land based at Fenit and does not spatially overlap with the licensed oyster dredging grounds or the associated dredging vessel movements within Tralee Bay. The development was subject to Appropriate Assessment Screening by Kerry County Council, which considered Tralee Bay and Magharees Peninsula, West to Cloghane SAC, including the conservation objective relating to the <i>Ostrea edulis</i> dominated community, and concluded that the development, individually and in combination with other plans and projects, was not likely to result in significant effects on a European site. Having regard to the absence of spatial overlap, the localised and temporary nature of construction effects, and the competent authority conclusion that the Fenit development would not give rise to significant effects individually or in combination, no credible pathway for likely significant in combination effects with the Project has been identified.	No likely significant in combination effects are predicted, consistent with the competent authority Stage 1 AA determination. Screened out at Stage 1.
An Coimisiún Pleanála	Facility Centre for Water Based Activities at Magherabeg Beach. The local authority application was accompanied by a Natura Impact Statement and was approved with conditions in June 2026.	JP08.319843	31/05/2024	While construction has the potential to result in localised disturbance, temporary increases in human activity and an increased risk of accidental pollution, the proposed facility is principally land based at Magherabeg Beach and does not spatially overlap with the licensed oyster dredging areas or associated dredging vessel movements within Tralee Bay. The development was subject to Natura Impact Statement assessment prior to permission being granted, including consideration of potential effects on relevant European sites. The Project represents the continuation of existing commercial native oyster dredging within Tralee Bay and does not involve a proposed increase in the spatial extent or intensity of the existing fishery. Given the absence of spatial overlap between the works and the dredging areas, the localised nature of the identified construction effects, and the absence of a credible pathway through which these effects could combine with those arising from the Project to adversely affect the relevant Special Conservation Interests or Qualifying Interests, likely significant in combination effects are not expected to arise.	No potential likely significant effects due to the terrestrial nature of the works. Screened out at Stage 1.

Website	Project Details	File Reference	Date Application Received	Assessment of Potential In-Combination Effects	Conclusion
An Coimisiún Pleanála / Kerry County Council Planning	Residential development cluster at Ballyard and lands adjoining Tralee Bay Wetlands: 52 residential units (ACP 315526), 40 dwellings (ACP 501547) and 25 dwellings (KCC 23/251).	315526 / 501547 / 23/251	27/11/2025	The developments comprise terrestrial residential construction with no spatial overlap with the licensed oyster dredging areas or associated vessel movements within Tralee Bay. Potential indirect pathways are limited principally to surface water runoff and additional foul wastewater loading. For the 52 unit development, the An Coimisiún Pleanála Appropriate Assessment Screening determined that the additional foul loading to Tralee wastewater treatment system would be negligible and that no significant effects, individually or in combination, would arise for Tralee Bay Complex SPA, Tralee Bay and Magharees Peninsula, West to Cloghane SAC or any other European site. No credible pathway has been identified through which these developments could combine with the localised effects of commercial oyster dredging within Tralee Bay.	No potential likely significant effects due to the terrestrial nature of the works. Screened out at Stage 1.
Kerry County Council Planning	Six glamping pods and a service building at Tonvane, Blennerville.	21/515	13/05/2021	The development is entirely terrestrial, with no spatial overlap with the licensed oyster dredging areas or associated vessel movements within Tralee Bay. Any construction related disturbance would be localised and temporary. Given the nature and scale of the development and the absence of a credible source pathway receptor linkage with the marine dredging activity, no mechanism has been identified through which significant effects could arise in combination with the Project.	No potential likely significant effects due to the terrestrial nature of the works. Screened out at Stage 1.
Kerry County Council Planning	Banna Beach Resort solar development, comprising approximately 810 kWp of solar generation. Permission was granted with conditions on 13 November 2024.	24/158	17/04/2024	The development comprises an approximately 810 kW ground mounted solar photovoltaic installation and is terrestrial, with no spatial overlap with the licensed oyster dredging areas or associated vessel movements within Tralee Bay. The An Coimisiún Pleanála Appropriate Assessment Screening considered potential construction related effects on surface water and European sites, including Tralee Bay Complex SPA, and concluded that no source pathway receptor connection to that SPA was established. It further concluded that no likely significant effects would arise individually or in combination with other plans or projects.	No likely significant in combination effects are predicted, consistent with the competent authority Stage 1 AA determination. Screened out at Stage 1.

Website	Project Details	File Reference	Date Application Received	Assessment of Potential In-Combination Effects	Conclusion
MARA Licence Applications	Blasket Sound marine surveys, including passive acoustic monitoring, boat-based transects and intertidal or subtidal surveys. The licence application was determined on 23 October 2025 and assigned to the Office of Public Works in April 2026.	MUL240001	25/04/2024	The authorised activity comprises temporary marine environmental surveys at Great Blasket Island and Blasket Sound, including passive acoustic monitoring, boat based transects and intertidal and subtidal surveys. The works are spatially separate from the commercial oyster dredging areas within Tralee Bay and involve only limited additional vessel and survey activity. MARA's Appropriate Assessment Screening considered physical disturbance, visual and above water noise disturbance, collision risk and potential in combination effects. It concluded, on the basis of objective scientific information, that the surveys would not have a significant effect on any European site either individually or in combination with other plans or projects and that Stage 2 Appropriate Assessment was not required.	No likely significant in combination effects are predicted having regard to the temporary survey activities, spatial separation from the Project and MARA Stage 1 AA determination. Screened out at Stage 1

4.7. Screening Outcome and Concluding Statement

On the basis of the best available scientific information and objective evidence, the screening assessment has determined that likely significant effects on the Qualifying Interests and Special Conservation Interests of relevant European sites cannot be excluded as a result of the Project, either alone or in combination with other plans or projects, in the absence of mitigation. The Project is therefore required to proceed to Stage 2 Appropriate Assessment, supported by the preparation of a Natura Impact Statement. The findings of the screening assessment are summarised in **Table 4-13**.

In particular, the screening identified direct spatial relationships between the proposed dredging areas and constituent benthic communities of Tralee Bay and Magharees Peninsula, West to Cloghane SAC, including the mapped *Ostrea edulis* dominated community and other sensitive benthic communities. The Native Oyster Dredging Impact Study provided evidence regarding the nature and potential ecological consequences of these pathways (Appendix 1). The relevant habitats, constituent communities and associated impact pathways are therefore brought forward for detailed assessment at Stage 2 in view of the applicable site specific Conservation Objectives (Table 4-13).

Table 4-13: Appropriate Assessment screening conclusion table.

AA screening outcome	
Brief Description of the Project	The Project relates to the licensing by Inland Fisheries Ireland of commercial native oyster (<i>Ostrea edulis</i>) dredging within defined fishing areas in Inner and Outer Tralee Bay, County Kerry. Dredging is undertaken by registered fishing vessels using a four foot (approximately 1.22 m) oyster dredge operated from the rear or side of the vessel and towed across the seabed. Commercial fishing is undertaken during a September to April inclusive season. The activity involves direct interaction with the seabed and the removal of native oysters > 78 mm from the fishing grounds.
European site(s)	
European site(s) in the Zone of Influence	The conservation features of the following SACs and SPAs are listed in Table 4-8 and Table 4-9 alongside their relevant conservation objectives. SACs • Tralee Bay and Magharees Peninsula, West to Cloghane SAC [002070] • Castlemaine Harbour SAC [000343] • Lower River Shannon SAC [002165] • Blasket Islands SAC [002172] SPAs • Tralee Bay Complex SPA [004188] • Magharee Islands SPA [004125] • Castlemaine Harbour SPA [004029] • Blasket Islands SPA [004008] • Puffin Island SPA [004003]
Assessment Summary	

Description of the potential impact mechanisms from the Project that have likely significant effects on the conservation features	1. Physical habitat disturbance 2. Increased suspended sediments and smothering 3. Impacts on benthic community structure 4. Effects on prey resources and the trophic food chain 5. Above water visual and noise disturbance 6. Underwater noise disturbance
Conservation features with the potential to be impacted by the Project	• Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Large shallow inlets and bays [1160] • Reefs [1170] • Otter (<i>Lutra lutra</i>) [1355] • Common bottlenose dolphin (<i>Tursiops truncatus</i>) [1349] • Grey seal (<i>Halichoerus grypus</i>) [1364] • Harbour porpoise (<i>Phocoena phocoena</i>) [1351] • Light-bellied brent goose (<i>Branta bernicla hrota</i>) [A046] • Shelduck (<i>Tadorna tadorna</i>) [A048] • Wigeon (<i>Mareca penelope</i>) [A855] • Teal (<i>Anas crecca</i>) [A052] • Mallard (<i>Anas platyrhynchos</i>) [A053] • Pintail (<i>Anas acuta</i>) [A054] • Scaup (<i>Aythya marila</i>) [A062] • Oystercatcher (<i>Haematopus ostralegus</i>) [A130] • Golden Plover (<i>Pluvialis apricaria</i>) [A140] • Grey Plover (<i>Pluvialis squatarola</i>) [A141] • Lapwing (<i>Vanellus vanellus</i>) [A142] • Dunlin (<i>Calidris alpina</i>) [A149] • Black-tailed Godwit (<i>Limosa limosa</i>) [A156] • Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] • Curlew (<i>Numenius arquata</i>) [A160] • Redshank (<i>Tringa totanus</i>) [A162] • Turnstone (<i>Arenaria interpres</i>) [A169] • Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] • Common Gull (<i>Larus canus</i>) [A182] • Shag (<i>Phalacrocorax aristotelis</i>) [A018]
Description of the potential direct or indirect impacts of the Project in combination with other plans or projects on European sites	The in-combination assessment identified plans and projects with impact pathways that may overlap with those associated with the licensed native oyster fishery. Potential common pathways include seabed disturbance, sediment resuspension and deposition, effects on benthic communities and prey resources, vessel related visual and acoustic disturbance, effects on water quality. Likely significant effects from the Project in combination with the identified plans and projects can be excluded at Stage 1 on the information available.
Conservation features with the potential to be impacted by the Project in combination with other plans or projects	The likely significant effects from the Project in combination with the identified plans and projects can be excluded at Stage 1 on the information available.
Concluding statement	On the basis of the best available scientific information and objective evidence, likely significant effects on the Qualifying Interests and Special Conservation Interests of relevant European sites cannot be excluded as a result of the Project, either alone or in combination with other plans or projects, in the absence of mitigation. The Project is therefore required to proceed to Stage 2 Appropriate Assessment.

5. Stage 2: Natura Impact Statement

5.1. Overview

Stage 2 of the Appropriate Assessment process considers whether the Project, either alone or in combination with other plans or projects, would adversely affect the integrity of a European site in view of the site's Conservation Objectives. Mitigation measures intended to avoid or reduce adverse effects may be considered at this stage.

This Natura Impact Statement (NIS) provides the scientific information required to inform Inland Fisheries Ireland (IFI), as the competent authority, in carrying out the Appropriate Assessment. It examines the Project and the relevant European sites to identify and assess the implications for their Qualifying Interests (QIs), Special Conservation Interests (SCIs) and Conservation Objectives, taking account of the potential for in-combination effects. Collectively QIs and SCIs are described as Conservation Features.

The competent authority may authorise the Project under Article 6(3) of the Habitats Directive only where it has ascertained that the Project would not adversely affect the integrity of a European site. This conclusion must be supported by complete, precise and definitive scientific findings and must leave no reasonable scientific doubt regarding the effects of the Project. Where adverse effects on site integrity cannot be excluded, the Project cannot be authorised under Article 6(3). Any proposal to proceed would require consideration of alternative solutions and, where applicable, the derogation provisions under Article 6(4), including imperative reasons of overriding public interest and compensatory measures.

The Stage 1 Appropriate Assessment Screening identified the European sites and associated conservation features for which likely significant effects from the Project could not be excluded. These sites and conservation features were therefore brought forward for Stage 2 Appropriate Assessment. A summary of the Stage 1 screening outcome is provided in **Table 4-13**.

A full description of the Project and the receiving environment is provided in **section 2**.

This NIS provides a detailed ecological assessment of the relevant European sites and conservation features, having regard to site-specific and activity-specific information. The assessment was undertaken with regard to the Department of the Environment, Heritage and Local Government guidance on Appropriate Assessment (DoEHLG, 2009, revised 2010), the European Commission methodological guidance on Article 6(3) and Article 6(4) of the Habitats Directive (European Commission, 2021), and the IFI Guidance Notes for Natura Impact Statements in the Vicinity of Watercourses (IFI, 2021).

For marine Annex I habitats and Annex II species, regard was also given to the Department of Arts, Heritage and the Gaeltacht and National Parks and Wildlife Service working document *Marine Natura Impact Statements in Irish Special Areas of Conservation* (DAHG and NPWS, 2012). This document provides relevant technical considerations for the assessment of marine habitats and species but does not constitute finalised departmental guidance.

The assessment of effects on Annex I habitats considered:

- the principal ecological components and constituent community types of each Annex I habitat
- the extent to which the habitat and its constituent communities vary under natural conditions
- the degree to which the habitat and its resident species could be affected by each impact mechanism
- the magnitude, spatial extent, duration, frequency, reversibility and recoverability of the predicted effects
- the resistance and resilience of the habitat and its constituent communities
- the physical, chemical and biological characteristics of the habitat
- the applicable Conservation Objective attributes and targets.

The assessment of effects on Annex II species considered:

- the potential effects on individuals and on the designated population
- the distribution and use of supporting habitat within and outside the European site
- direct effects, including physical harm, behavioural disturbance and displacement
- indirect effects, including changes in prey availability, prey distribution and habitat use
- the magnitude, spatial extent, duration, frequency, reversibility and recoverability of the predicted effects
- the applicable Conservation Objective attributes and targets.

The assessment of effects on SPA SCIs considered:

- the distribution of each SCI and its use of feeding, resting and roosting habitat
- the spatial and temporal relationship between the Project and supporting habitat used by the SCI

- direct disturbance and displacement arising from vessel presence, visual activity and above-water noise
- indirect effects arising from changes in prey availability, benthic communities and supporting habitat
- the timing, duration, frequency and recurrence of the Project relative to the seasonal occurrence of each SCI
- the applicable Conservation Objective attributes and targets, including population, distribution and supporting habitat targets.

In accordance with DoEHLG (2009, revised 2010), the Stage 2 assessment comprised three main steps:

1. **Impact prediction:** The likely impacts arising from the Project were identified and characterised. A source–pathway–receptor model was used to determine the conservation features that could be exposed to each impact mechanism.
2. **Assessment of effects:** The predicted effects of the Project, either alone or in combination with other plans or projects, were assessed to determine whether adverse effects on the integrity of a European site could be excluded in view of the site’s Conservation Objectives.
3. **Mitigation measures:** Where required, mitigation measures were identified to avoid or reduce potential adverse effects on the integrity of a European site. Any mitigation measures relied upon in reaching the assessment conclusion must be specific, effective and capable of implementation. Their effectiveness must be established with sufficient certainty to support the conclusion reached.

5.2. Impact prediction

As described in **section 4.3**, the impact mechanisms associated with the Project that could affect the QIs of SACs and the SCIs of SPAs are:

1. Physical habitat disturbance
2. Increased suspended sediments and smothering
3. Impacts on benthic community structure
4. Effects on prey resources and the trophic food chain
5. Above water visual and noise disturbance
6. Underwater noise disturbance

The following sections assess the potential effects on the relevant conservation features through these impact pathways. Each impact mechanism is considered in relation to the relevant source, the pathway through which an effect could arise and the ecological receptor that could be affected.

The assessment considers the nature, magnitude, spatial extent, duration, frequency, reversibility and persistence of the predicted effects. It also considers the sensitivity, resistance and resilience of the receptor, the potential for recovery and any uncertainty arising from limitations in the available information.

The Natura 2000 Standard Data Forms for the relevant European sites were reviewed to identify recorded threats, pressures and positive activities or management that could inform the assessment. This information was treated as contextual evidence. The assessment of adverse effects on site integrity was undertaken in view of the site-specific Conservation Objectives and their associated attributes and targets.

Table 5-1 summarises the conservation features brought forward for Stage 2 assessment. These conservation features are assessed against the relevant Project impact mechanisms and, where applicable, the Conservation Objectives of the European sites for which they are QIs or SCIs. Potential effects are assessed both from the Project alone and in combination with other relevant plans or projects.

Table 5-1: Conservation features screening in for Stage 2 assessment.

Ecological Group	Conservation Feature	Impact Mechanism					
		1. Physical habitat disturbance	2. Increased suspended sediments and smothering	3. Impacts on benthic community structure	4. Effects on prey resources and the trophic food chain	5. Above water visual and noise disturbance	6. Underwater noise disturbance
Annex I habitats	Estuaries [1130]	Potential effect	Potential effect	Potential effect			
	Mudflats and sandflats not covered by seawater at low tide [1140]	Potential effect	Potential effect	Potential effect			
	Large shallow inlets and bays [1160]	Potential effect	Potential effect	Potential effect			
	Reefs [1170]	Potential effect	Potential effect	Potential effect			
Annex II mammal species	Otter (<i>Lutra lutra</i>) [1355]				Potential effect	Potential effect	
	Common bottlenose dolphin (<i>Tursiops truncatus</i>) [1349]						Potential effect
	Grey seal (<i>Halichoerus grypus</i>) [1364]					Potential effect	Potential effect
	Harbour porpoise (<i>Phocoena phocoena</i>) [1351]						Potential effect
SCI Bird species	Light-bellied brent goose (<i>Branta bernicla hrota</i>) [A046]				Potential effect	Potential effect	
	Shelduck (<i>Tadorna tadorna</i>) [A048]				Potential effect	Potential effect	
	Wigeon (<i>Mareca penelope</i>) [A855]				Potential effect	Potential effect	
	Teal (<i>Anas crecca</i>) [A052]					Potential effect	

Ecological Group	Conservation Feature	Impact Mechanism					
		1. Physical habitat disturbance	2. Increased suspended sediments and smothering	3. Impacts on benthic community structure	4. Effects on prey resources and the trophic food chain	5. Above water visual and noise disturbance	6. Underwater noise disturbance
	Mallard (<i>Anas platyrhynchos</i>) [A053]				Potential effect	Potential effect	
	Pintail (<i>Anas acuta</i>) [A054]				Potential effect	Potential effect	
	Scaup (<i>Aythya marila</i>) [A062]				Potential effect	Potential effect	
	Oystercatcher (<i>Haematopus ostralegus</i>) [A130]				Potential effect	Potential effect	
	Golden Plover (<i>Pluvialis apricaria</i>) [A140]					Potential effect	
	Grey Plover (<i>Pluvialis squatarola</i>) [A141]				Potential effect	Potential effect	
	Lapwing (<i>Vanellus vanellus</i>) [A142]					Potential effect	
	Dunlin (<i>Calidris alpina</i>) [A149]				Potential effect	Potential effect	
	Black-tailed Godwit (<i>Limosa limosa</i>) [A156]				Potential effect	Potential effect	
	Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]				Potential effect	Potential effect	
	Curlew (<i>Numenius arquata</i>) [A160]				Potential effect	Potential effect	
	Redshank (<i>Tringa totanus</i>) [A162]				Potential effect	Potential effect	
	Turnstone (<i>Arenaria interpres</i>) [A169]				Potential effect	Potential effect	

Ecological Group	Conservation Feature	Impact Mechanism					
		1. Physical habitat disturbance	2. Increased suspended sediments and smothering	3. Impacts on benthic community structure	4. Effects on prey resources and the trophic food chain	5. Above water visual and noise disturbance	6. Underwater noise disturbance
	Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]				Potential effect	Potential effect	
	Common Gull (<i>Larus canus</i>) [A182]				Potential effect	Potential effect	
	Shag (<i>Phalacrocorax aristotelis</i>) [A018]				Potential effect	Potential effect	

Commercial native oyster dredging is directed towards established oyster grounds within the proposed Inner and Outer Tralee Bay dredging polygons (**Figure 4-1**). The Outer Tralee Bay polygon covers approximately 14.996 km² and the Inner Tralee Bay polygon covers approximately 10.873 km². Although the Fishery Order applies across a wider area of Tralee Bay, dredging under the Project will be confined to these polygons. The polygons represent the maximum spatial envelope within which fishing may occur and do not represent the area of seabed contacted daily. The assessment considers the recurrence of the activity over the proposed ten-year licensing period rather than treating each fishing season in isolation.

The principal receptor within the established fishing grounds is the *Ostrea edulis* dominated community, which accounts for approximately 15.2% of the Outer Tralee Bay polygon and 36.18% of the Inner Tralee Bay polygon. The polygons also intersect mapped sedimentary communities and limited areas of *Zostera*, *Mytilus* and intertidal and subtidal reef communities. The oysters occur as patchy aggregations within predominantly sedimentary habitat rather than as a documented topographic biogenic reef. Living oysters, shell and cultch provide localised settlement surfaces, interstitial spaces and small-scale seabed relief.

Dredging is undertaken using a nominal 1.22 m dredge that penetrates approximately 1-2 cm into the surface sediment. The activity does not involve the excavation, removal or disposal of large volumes of sediment and will not remove, infill or convert Annex I habitat. Potential effects are instead associated with direct contact along the dredge path, sediment disturbance and resuspension, and effects on benthic communities (Impact Mechanisms 1-4).

The fishery operates between September and April, with no commercial dredging between May and August. This annually interrupts direct seabed pressure and provides a period without further dredge contact. The Marine Institute survey for 2025 shows that the oyster stocks continue to occupy the established grounds and repeatedly support smaller, intermediate and larger oysters. The available evidence does not indicate progressive loss of the oyster grounds or physical deterioration sufficient to prevent continued recruitment and the persistence of substantial biomass. Physical disturbance of the *Ostrea edulis* dominated and associated sedimentary communities was therefore assessed as local and reversible, seasonal rather than continuous, and not significant or persistent (Appendix 1).

The September to April fishing season overlaps the principal period during which wintering waterbirds use Tralee Bay. Dredging is undertaken during daylight and is intermittent within the fishing season. Project information indicates that only a limited number of vessels operate at any one time, the polygons are not entirely dredged on a daily basis, and individual locations are not subject to continuous vessel presence. Birds therefore have the opportunity to use potentially overlapping areas when fishing vessels are absent. The May

to August cessation confirms that the activity is not year round, although the assessment of effects on wintering waterbirds does not rely on this closure alone.

The NPWS conservation objective supporting documentation states that significant continuous or ongoing disturbance should not generally exceed approximately 15% of the interpolated area of the relevant community type. This is a management review benchmark rather than an automatic limit on any physical contact. The assessment must consider whether disturbance would be significant and continuous or ongoing, together with its actual spatial extent, frequency, duration, reversibility and implications for the relevant impact receptor.

The following sections assess each impact pathway against the site specific Conservation Objectives of the Qualifying Interests and Special Conservation Interests carried forward from screening. The assessment considers direct and indirect effects, short and long-term effects, seasonality, recovery, and repeated annual exposure. Conclusions are reached in the absence of mitigation unless mitigation is expressly identified. In-combination effects are assessed separately in **Section 5.4**.

5.2.1. Physical habitat disturbance

As explained in **Section 4.3.1**, towing an oyster dredge in contact with the seabed may abrade or penetrate surface sediments, form dredge tracks and displace or overturn oysters, shell, cultch and associated fauna. The nature and persistence of disturbance depend on tow intensity and recurrence, substrate characteristics, hydrodynamic exposure, seabed complexity and the recovery capacity of the receiving community.

The conservation features assessed under this pathway are Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160] and Reefs [1170] within Tralee Bay and Magharees Peninsula, West to Cloghane SAC [002070]. The assessment considers potential changes to habitat area and to the extent, distribution, structure and natural condition of their constituent benthic communities. Further information on this impact mechanism and its relevance to The Project are available in the Dredging Impact Study (Appendix 1).

5.2.1.1. Impact assessment

The spatial extent of the physical disturbance pathway was considered in relation to the proposed Inner and Outer Tralee Bay dredging areas and the established oyster grounds within them. Direct effects comprise local abrasion, shell displacement and damage to organisms contacted along individual dredge tracks. Indirect effects associated with sediment mobilisation and deposition are assessed separately in **Section 5.2.2**.

NPWS identified the *Ostrea edulis* dominated community as a constituent community of Mudflats and sandflats not covered by seawater at low tide [1140] and Large shallow inlets and bays [1160], but not of Estuaries [1130] or Reefs [1170]. For Estuaries [1130], the physical disturbance pathway relates to the sedimentary communities intersected by the proposed dredge areas. Where the dredge areas intersect mapped reef communities, direct contact could cause local abrasion or displacement of surface material but would not remove or convert reef substrate. Effects on the biological composition of reef and other sensitive communities are assessed under benthic community structure in **Section 5.2.3**.

Evidence from studies of bottom-contact fishing indicates that previously fished benthic communities generally show a less pronounced response to additional disturbance than previously unfished communities, while structurally complex biogenic habitats may experience greater initial effects and longer recovery periods. Local abrasion, shell displacement and damage may still occur along individual dredge tracks (Kaiser et al., 2006; Sciberras et al., 2018).

The assessment considered short-term effects within and adjacent to individual dredge tracks, potential long-term effects arising from repeated disturbance, seasonality, recovery and repeated annual exposure over the proposed ten-year licensing period. The Native Oyster Dredging Impact Study considered that most of the commercially fished *Ostrea edulis* dominated community was likely to be contacted over time and that the spatial extent of disturbance could therefore exceed approximately 15% of the oyster grounds. The annual cessation of dredging interrupts the pressure and provides a period without seabed contact for the seabed to partially recover. The site specific evidence does not indicate progressive deterioration of the established oyster grounds. The Dredging Impact Study assessed physical disturbance of the *Ostrea edulis* dominated community as neither significant nor continuous or ongoing. Spatial extent alone therefore did not trigger the approximately 15% management review provision for the community within Mudflats and sandflats not covered by seawater at low tide [1140] or Large shallow inlets and bays [1160] (NPWS, 2014; Appendix 1).

Having regard to the dredging within established oyster grounds, the sedimentary and historically disturbed character of those grounds, the interruption of direct pressure between fishing seasons and the continued persistence and replenishment of the native oyster stocks, physical habitat disturbance will not reduce the permanent area or distribution of Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160] or Reefs [1170]. It will not cause significant continuous or ongoing disturbance capable of compromising the natural condition of the constituent sedimentary or *Ostrea edulis* dominated communities.

5.2.1.2. Assessment conclusion

Physical habitat disturbance is assessed as not significant and not persistent. Effects capable of undermining the site specific Conservation Objectives for Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160] or Reefs [1170] can be excluded. Adverse effects on the integrity of Tralee Bay and Magharees Peninsula, West to Cloghane SAC arising from this impact pathway can therefore be excluded in light of the best scientific knowledge available. No additional mitigation is required for this impact pathway beyond the current management measures in place for the Tralee Bay oyster fishery.

5.2.2. Increased suspended sediments and smothering

As explained in **Section 4.3.2**, disturbance of unconsolidated surface sediment may temporarily increase suspended sediment concentrations and result in redeposition within or beyond the dredge track. Coarser particles generally settle close to the disturbed area, while finer material may remain suspended for longer and be transported farther by tidal currents. Deposited sediment may temporarily cover oysters, spat, exposed shell and associated benthic flora and fauna, with potential effects on feeding, respiration and the availability of settlement surfaces.

The conservation features assessed under this pathway are Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160] and Reefs [1170] within Tralee Bay and Magharees Peninsula, West to Cloghane SAC [002070]. The assessment considers the potential for sediment resuspension and deposition to alter the distribution, structure or natural condition of their constituent communities. Further information on this impact mechanism and its relevance to The Project are available in the Dredging Impact Study (Appendix 1).

5.2.2.1. Impact assessment

The assessment considered direct and indirect effects on Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160] and Reefs [1170]. The direct effect would comprise the resuspension and subsequent deposition of surface sediment within or close to individual dredge tracks. The indirect pathway would arise where finer material remained in suspension and was transported beyond the directly disturbed area.

Available sediment data indicate that the majority of the proposed dredging areas comprises sand or mixed sediment. Silt and clay generally account for less than 8% of the principal mixed sediment type and less than 3% of the principal sandy sediment type. Higher proportions of fine sediment occur locally around Spa, Derrymore Island and Scraggane Point. Evidence from comparable shellfish dredging indicates that coarser sediment settles more rapidly than fine sediment. Larger sand particles were modelled for bottom-towed mussel dredging as settling within the first 10 minutes following resuspension, while plume persistence of approximately one hour was mainly attributable to the smallest silt fraction of less than 0.063 mm (Pastor et al., 2020). Field measurements at one scallop dredging site recorded suspended sediment concentrations declining to approximately 2% of their initial level within 30 minutes, with the material remaining in suspension predominantly comprising mud-sized particles (Black and Parry, 1999). Given the predominance of sand and mixed sediment and the generally low proportions of silt and clay within the proposed Tralee Bay dredging areas, these findings support the assessment that the coarser sediment fraction would settle relatively rapidly, while the smaller fine fraction could remain suspended for longer.

MarLIN classifies *Ostrea edulis* as having High sensitivity to deposition of up to 5 cm of fine material in a single discrete event. This is a receptor sensitivity benchmark and does not demonstrate that deposition of this thickness would arise. No direct measurements of suspended sediment concentration, plume duration, transport distance or deposition thickness are available for the Tralee Bay fishery. Having regard to the shallow seabed interaction with the dredge teeth, the sediment characteristics and the absence of sediment excavation or disposal, the available evidence does not indicate a source capable of causing widespread or sustained deposition. This conclusion is consistent with the findings of the Dredging Impact Study in Appendix 1.

The relevant site specific conservation objectives require the permanent area and distribution of the four Annex I habitats to remain stable or increase. They also require the extent, quality, natural condition or biological composition of their constituent communities to be maintained (NPWS, 2014). Temporary deposition would not remove or significantly degrade the habitats because dredging is intermittent and spatially targeted, individual locations are not dredged daily or continuously, and only a limited number of vessels are expected to operate at any one time. The established management of the Tralee Bay fishery, including restriction of dredging to the proposed areas, annual controls on harvesting and the seasonal cessation of dredging, further limits the duration and recurrence of sediment disturbance and provides intervals for suspended material to settle or disperse and deposited material to be redistributed.

Short term effects would comprise temporary increases in suspended sediment and local deposition during or following dredging. Long term effects would require repeated annual disturbance to cause sediment accumulation or prevent recovery between fishing seasons. Although dredging would recur over the proposed licence period, the annual cessation provides an interval for suspended material to settle or disperse and for deposited material to be redistributed. The continued survival, recruitment and growth of oysters recorded by Marine Institute stock surveys provide indirect evidence that repeated sediment disturbance has not caused persistent smothering within the established grounds.

Increased suspended sediment and deposition would therefore be localised, temporary and reversible. The pathway would not reduce habitat area or distribution, cause a lasting alteration of sediment conditions or prevent the maintenance of the relevant community targets. The Dredging Impact Study assessed sediment resuspension and smothering as not significant and not persistent. The pathway would not constitute significant continuous or ongoing disturbance and the NPWS management review provision of 15% is not reached.

5.2.2.2. Assessment conclusion

Increased suspended sediments and smothering would not prevent the maintenance of the favourable conservation condition of Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160] or Reefs [1170]. Adverse effects on the integrity of Tralee Bay and Magharees Peninsula, West to Cloghane SAC can be excluded in light of the best scientific knowledge available. No additional mitigation is required for this impact pathway beyond the current management measures in place for the Tralee Bay oyster fishery.

5.2.3. Impacts on benthic community structure

As explained in **Section 4.3.3**, oyster dredging may injure, remove or displace epifauna and shallow infauna and remove/redistribute oysters, shell and cultch. Repeated disturbance may alter the abundance, density and relative composition of benthic taxa. The response is influenced by fishing intensity, substrate type, previous disturbance and the recovery characteristics of the receiving community.

The conservation features assessed under this pathway are Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160] and Reefs [1170] within Tralee Bay and Magharees Peninsula, West to Cloghane SAC [002070]. The assessment considers whether dredging could cause a lasting change in community distribution, biological composition, quality or ecological function. Further information on this impact mechanism and its relevance to The Project are available in the Dredging Impact Study (Appendix 1).

5.2.3.1. Impact assessment

As set out in **Section 4.3.3**, the percentages below represent conservative maximum intersections between the proposed dredge polygons and the mapped communities. They do not represent the seabed area dredged during a fishing season or the area subject to significant disturbance. Community figures are assessed separately and are not additive because some mapped communities overlap.

Sedimentary community complexes

The proposed dredge areas intersect the Sand to sandy mud with polychaetes and bivalves, Sand with *Nephtys cirrosa*, and Mixed sediment with crustaceans, bivalves and polychaetes community complexes. The Conservation Objectives require these communities to be conserved in natural condition.

Approximately 72.63 ha of the Sand to sandy mud with polychaetes and bivalves community complex occurs within the Inner Tralee Bay proposed dredge area, equivalent to approximately 9.5% of its 767 ha mapped

extent within the SAC. Approximately 575.3 ha of the Sand with *Nephtys cirrosa* community complex occurs across the two proposed dredge areas, equivalent to approximately 23.6% of its 2,435 ha mapped extent. Approximately 1,159.29 ha of the Mixed sediment with crustaceans, bivalves and polychaetes community complex occurs across the two proposed dredge areas, equivalent to approximately 38.7% of its 2,992 ha mapped extent.

Direct dredge contact may locally alter the abundance or distribution of shallow infauna and epifauna. These communities occur extensively outside the proposed dredge areas, and the mapped intersections do not indicate that each community will be dredged uniformly or in its entirety. The seasonal and targeted activity is not expected to cause a lasting change in their distribution, biological composition or natural condition.

***Sabellaria* dominated community complex**

The *Sabellaria* dominated community complex is a constituent community of Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160] and Reefs [1170]. The Conservation Objectives require its extent to be maintained and its high quality to be conserved, subject to natural processes.

No mapped overlap occurs with either proposed dredge area, representing <1% of the approximately 7 ha mapped extent within the SAC. A direct pathway for effects on the structure of this community is therefore absent. Indirect sediment effects have been assessed separately under **Section 5.2.2**.

***Mytilus* dominated community**

The *Mytilus* dominated community is a constituent community of Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160] and Reefs [1170]. The Conservation Objectives require its extent to be maintained and its high quality to be conserved, including the maintenance of *Mytilus edulis* density.

Approximately 0.11 ha of the community occurs within the Inner Tralee Bay proposed dredge area. This represents less than 0.1% of the Inner polygon and approximately 0.9% of the 12 ha mapped extent within the SAC. No mapped overlap occurs within the Outer Tralee Bay proposed dredge area. Direct contact could displace or damage mussels and associated fauna, but the very limited maximum intersection confines any potential effect to a small and localised part of the community. It would not result in a permanent reduction in community extent or prevent the maintenance of its high quality.

***Ostrea edulis* dominated community**

The *Ostrea edulis* dominated community is a constituent community of Mudflats and sandflats not covered by seawater at low tide [1140] and Large shallow inlets and bays [1160]. The Conservation Objectives require the community to be conserved in natural condition.

Approximately 393.38 ha occurs within the Inner Tralee Bay proposed dredge area and approximately 227.97 ha occurs within the Outer Tralee Bay proposed dredge area. These intersections represent 36.2% and 15.2% of the respective dredge polygons. The combined intersection of approximately 621.35 ha is equivalent to approximately 95.6% of the 650 ha mapped extent within the SAC.

This high percentage reflects the location of the proposed polygons around the established oyster grounds and does not represent the area contacted during a fishing season. The Tralee Bay oyster grounds are historically exploited sedimentary habitats comprising oysters and oyster clumps within sediment rather than documented topographic biogenic reefs. Direct disturbance of oysters, shell and associated fauna may occur within dredge tracks. Marine Institute survey data continue to demonstrate stock persistence, recurrent recruitment and the presence of smaller, intermediate and larger oysters. The available evidence does not indicate progressive deterioration capable of causing a lasting change in the distribution, natural condition or ecological function of the community.

***Zostera* dominated community complex**

The *Zostera* dominated community complex is a constituent community of Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140] and Large shallow inlets and bays [1160]. The Conservation Objectives require its extent to be maintained and its high quality to be conserved, with community quality defined by reference to *Zostera* shoot density.

No mapped overlap occurs within the Inner Tralee Bay proposed dredge area. Approximately 11.07 ha occurs within the Outer Tralee Bay proposed dredge area, representing approximately 0.7% of that polygon and 3.2% of the 350 ha mapped extent within the SAC. Direct contact could damage shoots or rhizomes and disturb associated fauna. Consultation with licensed fishers confirms that dredging is directed away from seagrass, consistent with the established spatial pattern of the fishery and the limited mapped intersection. This operating pattern forms part of the activity assessed and is not introduced as mitigation. The activity will not cause a permanent reduction in the extent of the community or prevent the maintenance of its high quality.

Reef communities

The Conservation Objectives for Reefs [1170] require the estimated minimum habitat area of 2,856 ha and its distribution to remain stable or increase. They also require the biological composition of the Intertidal reef, Subtidal reef and *Laminaria* dominated reef communities to be conserved in natural condition.

Approximately 12.45 ha of the Intertidal reef community complex occurs within the Inner Tralee Bay proposed dredge area, equivalent to approximately 5.6% of its 221 ha mapped extent within the SAC. Approximately 105.36 ha of the Subtidal reef community complex occurs within the Outer Tralee Bay proposed dredge area and approximately 3.4 ha occurs within the Inner proposed dredge area. The combined Subtidal reef intersection of approximately 109.01 ha represents approximately 4.4% of its 2,499 ha mapped extent. Together, the mapped Intertidal and Subtidal reef intersections comprise approximately 121.46 ha, equivalent to approximately 4.3% of the estimated minimum reef extent. No mapped overlap occurs with the *Laminaria* dominated reef community complex.

Oyster dredging will not remove or convert reef habitat and will not reduce its permanent area or distribution. Direct contact could locally abrade reef surfaces or dislodge attached fauna within the mapped intersections. The limited SAC-scale overlap, targeted nature of the fishery and seasonal interruption of dredging do not indicate a lasting change in the biological composition or natural condition of the reef communities.

The Dredging Impact Study concluded that interactions with mapped *Zostera*, *Mytilus* and reef communities were not significant and not persistent. This was a precautionary impact-study conclusion based on mapped spatial overlap. The present Stage 2 assessment takes those interactions forward and assesses them against the site-specific Conservation Objectives, quantified SAC scale overlaps and the characteristics of the proposed activity.

Dredging is seasonal rather than continuous, and the annual cessation between May and August interrupts the pressure and provides an interval for recovery. Repeated annual exposure is not expected to result in progressive or long-term deterioration of community distribution, extent, quality, biological composition or natural condition.

The NPWS management provision applies where disturbance of a community type is both significant and continuous or ongoing and affects approximately 15% or more of its interpolated area. The percentages presented above are spatial intersections and cannot be treated as equivalent to significant continuous or ongoing disturbance. Having regard to the nature, extent, duration, seasonality, reversibility and recurrence of the predicted effects, impacts on benthic community structure were assessed as not significant and not persistent.

5.2.3.2. Assessment conclusion

Commercial oyster dredging will not reduce the permanent habitat area of Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140] or Large shallow inlets and bays [1160], or the permanent area or distribution of Reefs [1170]. It will not prevent the maintenance of the extent and high quality of the *Zostera*, *Mytilus* or *Sabellaria* dominated communities, the natural condition of the *Ostrea edulis* dominated and sedimentary communities, or the biological composition of the reef communities. Effects capable of undermining the site-specific Conservation Objectives can therefore be excluded.

Adverse effects on the integrity of Tralee Bay and Magharees Peninsula, West to Cloghane SAC arising from effects on benthic community structure can be excluded in light of the best scientific knowledge available. No additional mitigation is required for this impact pathway beyond the current management measures in place for the Tralee Bay oyster fishery.

5.2.4. Effects on prey resources and the trophic food chain

As explained in **Section 4.3.4**, dredging may remove, injure or displace benthic invertebrates and alter the sedimentary, shell and vegetated habitats that support prey communities. Changes in prey abundance, distribution or accessibility may indirectly affect qualifying species that forage within or are functionally connected to the dredging areas. The potential response depends on the scale and duration of prey disturbance, dietary reliance, foraging range, availability of alternative resources and recovery of the affected communities.

The conservation features assessed are Otter [1355] as a Qualifying Interest of Tralee Bay and Magharees Peninsula, West to Cloghane SAC [002070], Castlemaine Harbour SAC [000343] and Lower River Shannon SAC [002165]. The bird features assessed comprise Light-bellied Brent Goose [A046], Shelduck [A048], Wigeon [A855], Mallard [A053], Pintail [A054], Scaup [A062], Oystercatcher [A130], Grey Plover [A141], Dunlin [A149], Black-tailed Godwit [A156], Bar-tailed Godwit [A157], Curlew [A160], Redshank [A162], Turnstone [A169], Black-headed Gull [A179] and Common Gull [A182] of Tralee Bay Complex SPA [004188], together with Shag [A018] and Common Gull [A182] of Magharee Islands SPA [004125].

5.2.4.1. Impact assessment

The site specific Conservation Objectives for the screened in SCIs of Tralee Bay Complex SPA require their population trends to remain stable or increase and that there is no significant decrease in the range, timing or intensity of use of areas. The objective for Grey Plover is to restore its favourable conservation condition. The following assessment considers whether direct disturbance of benthic prey or indirect changes to the trophic food chain could undermine these targets. Temporary displacement caused by the presence, movement or

noise of operating vessels is assessed separately under the above water visual and noise disturbance pathway in **Section 5.2.5**.

Fenit, subsite OK442

Fenit is one of the Inner Bay subsites in which mapped feeding activity may interact with the proposed dredging area. Oystercatcher recorded its peak foraging density at Fenit during one survey, Curlew foraged there during all four low tide surveys, and the subsite was regularly used by comparatively high numbers of subtidally feeding Black-headed Gull. Redshank also used the subsite for feeding. Oystercatcher and Curlew were distributed across 15 feeding subsites with Redshank using 11 feeding subsites and Black-headed Gull widely distributed throughout the SPA. Fenit therefore forms part of a substantially wider feeding resource for these species.

Dredging could cause local and temporary injury, displacement or reduced accessibility of benthic prey within individual dredge tracks. No persistent deterioration of the oyster grounds or associated benthic communities was identified. The localised effects within Fenit would not materially reduce the prey resource available to Oystercatcher, Curlew, Redshank or Black-headed Gull or cause a significant decrease in the range, timing or intensity of their use of feeding areas.

Spa, subsite OK472

Spa is the second Inner Bay subsite in which mapped feeding activity may interact with the proposed dredging area. It supported the peak intertidal foraging numbers of Grey Plover during three surveys and peak numbers of Bar-tailed Godwit during the final two low tide surveys. Spa also supported the peak intertidal feeding count of Shelduck during one survey and was used for subtidal feeding by Mallard. Curlew, Oystercatcher, Redshank and Black-headed Gull were also recorded feeding within or associated with the subsite.

Particular consideration has been given to Spa because of the comparatively high use of this area by Grey Plover and Bar-tailed Godwit. Grey Plover and Bar-tailed Godwit also used Blennerville, Carrahane Strand, Derryquay and other intertidal areas, while the remaining species were distributed more widely across the SPA. Any change in benthic prey would be confined to the portion of Spa associated with the Inner Tralee Bay proposed dredge area and would be local and reversible. The activity would not cause a lasting reduction in food availability within Spa or across the wider SPA and would not prevent restoration of Grey Plover or undermine the population and distribution targets for Bar-tailed Godwit, Shelduck, Mallard, Oystercatcher, Curlew, Redshank or Black-headed Gull.

Scraggane Bay and Castlegregory, subsite OK506

The broad OK506 survey subsite supported feeding Light-bellied Brent Goose, Oystercatcher, Curlew, Redshank, Turnstone, Black-headed Gull and Common Gull. It supported peak counts of several of these species during individual surveys and forms part of an important sandy shore feeding complex around Castlegregory and Scraggane Bay.

A visual comparison of the feeding distribution maps in the NPWS Conservation Objectives supporting document with the Outer Tralee Bay proposed dredge polygon did not identify an overlap between the mapped feeding locations and the fishing ground. The occurrence of the bird records and proposed dredge polygon within the same extensive survey subsite does not establish a direct spatial interaction. A direct pathway through disturbance or reduction of the mapped prey resources used by these species is therefore not identified at the Outer Tralee Bay ground.

Species feeding principally in other subsites

The 2009/2010 survey information places the principal feeding areas of Wigeon, Pintail, Scaup, Dunlin and Black-tailed Godwit outside the three project related survey subsites. Their principal feeding areas included Blennerville, Annagh, Derryquay, Bealathaleen Creek, Barrow Harbour, the River Lee and Lough Gill. These areas are outside the proposed dredge polygons. The activity would not affect the prey resources within their principal feeding areas or cause a significant decrease in the range, timing or intensity of their use.

Magharee Islands SPA

The screened in features of Magharee Islands SPA are Shag and Common Gull. The site specific Conservation Objectives seek to restore the favourable conservation condition of Shag and maintain the favourable conservation condition of Common Gull. The relevant targets require stable or increasing breeding populations, sufficient productivity, sufficient suitable foraging locations and available forage biomass, no significant disturbance within ecologically connected areas and no barrier significantly affecting access between the colonies and important feeding areas. Shag feeds almost exclusively on fish, while Common Gull may take fish and marine invertebrates.

The project will not affect the breeding islands, create a barrier between the colonies and marine feeding habitat or remove fish resources. No reduction in fish biomass is predicted or relied upon in reaching this conclusion. The local and reversible benthic effects identified by the Dredging Impact Study would not materially reduce the number or extent of suitable foraging locations or the availability of marine invertebrate prey for Common Gull. The May to August cessation removes dredging pressure during much of the breeding period and provides additional support for the absence of effects on the breeding populations.

Direct effects on prey would be confined to local disturbance within the proposed dredge areas. Indirect effects associated with sediment resuspension and deposition are assessed under **Section 5.2.2**. Having regard to the spatially restricted and reversible nature of the benthic effects, the continued functioning of the established oyster grounds, the distribution of the screened in species and the availability of extensive alternative feeding habitat, repeated annual dredging would not cause a progressive or lasting reduction in prey availability.

5.2.4.1. Assessment conclusion

The project will not cause a significant or lasting reduction in prey availability within Tralee Bay Complex SPA or Magharee Islands SPA. It will not cause a significant decrease in the range, timing or intensity of use of feeding areas by the screened in waterbird SCIs, prevent their population trends from remaining stable or increasing, or undermine the restoration objective for Grey Plover. It will not undermine the population, productivity, foraging resource or connectivity targets for Shag or Common Gull of Magharee Islands SPA.

Adverse effects on the integrity of Tralee Bay Complex SPA and Magharee Islands SPA arising from effects on prey resources and the trophic food chain can therefore be excluded in light of the best scientific knowledge available. No additional mitigation is required for this impact pathway beyond the current management measures in place for the Tralee Bay oyster fishery.

5.2.5. Above-water visual and noise disturbance

As explained in **Section 4.3.5**, vessel movements, crew activity, dredge handling and associated airborne noise may cause temporary behavioural disturbance to birds and mobile Annex II species using the dredging areas or nearby foraging, resting, roosting or transit habitat. Responses may include alert behaviour, interruption of feeding, avoidance or temporary displacement. The potential effect depends on proximity, frequency and duration of activity, species sensitivity, habituation and the availability of alternative habitat.

The conservation features assessed are the bird SCIs identified under the prey-resource pathway, together with Teal [A052], Golden Plover [A140] and Lapwing [A142] of Tralee Bay Complex SPA [004188]. The Annex II features assessed are Otter [1355] of Tralee Bay and Magharees Peninsula, West to Cloghane SAC [002070], Castlemaine Harbour SAC [000343] and Lower River Shannon SAC [002165], Bottlenose Dolphin [1349] of Lower River Shannon SAC, and Grey Seal [1364] and Harbour Porpoise [1351] of Blasket Islands SAC [002172].

5.2.5.1. Impact assessment

A risk assessment to examine the potential impacts on the identified SCIs has been undertaken using the following criteria:

- Species risk of disturbance (**Table 5-2**)
- Species population sensitivity (**Table 5-3**)
- Licenced area habitat suitability (**Table 5-4**)
- Species habitat flexibility (**Table 5-5**)
- Significant of risk (**Table 5-7**)

The numerical framework provides supporting information and does not determine the Appropriate Assessment conclusion. The conclusion is based on the characteristics of the activity, the spatial distribution and ecological requirements of each SCI, the NPWS survey information and the site-specific Conservation Objectives.

Risk of disturbance

The presence and movement of vessels within or beside feeding or roosting habitat may result in behavioural disturbance. Species differ in their propensity to exhibit alert behaviour, cease feeding or move away from an approaching vessel.

The disturbance categories in **Table 5-2** draw on Garthe and Hüppop (2004), Furness and Wade (2012), Furness et al. (2013) and Goodship and Furness (2022). Where Goodship and Furness provide a qualitative category

rather than a numerical value, that category has been translated to the five-point scale used in this assessment. N/A indicates that a directly applicable numerical score was not identified. It does not indicate that a species is insensitive to disturbance or that it has not been assessed.

Table 5-2: Disturbance risk categories of the listed bird species (sensu Furness et al., 2013).

Bird species	Disturbance Category
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>)	N/A
Shelduck (<i>Tadorna tadorna</i>)	5
Wigeon (<i>Mareca penelope</i>)	5
Teal (<i>Anas crecca</i>)	N/A
Mallard (<i>Anas platyrhynchos</i>)	2
Pintail (<i>Anas acuta</i>)	3
Scaup (<i>Aythya marila</i>)	4
Oystercatcher (<i>Haematopus ostralegus</i>)	3
Golden Plover (<i>Pluvialis apricaria</i>)	3
Grey Plover (<i>Pluvialis squatarola</i>)	3
Lapwing (<i>Vanellus vanellus</i>)	N/A
Dunlin (<i>Calidris alpina alpina</i>)	3
Black-tailed Godwit (<i>Limosa limosa</i>)	3
Bar-tailed Godwit (<i>Limosa lapponica</i>)	3
Curlew (<i>Numenius arquata</i>)	5
Redshank (<i>Tringa totanus</i>)	3
Turnstone (<i>Arenaria interpres</i>)	N/A
Black-headed Gull (<i>Chroicocephalus ridibundus</i>)	2
Common Gull (<i>Larus canus</i>)	2
Shag (<i>Phalacrocorax aristotelis</i>)	3

Species population sensitivity

BoCCI4 conservation status is used as one indicator of population sensitivity. Red, Amber and Green listing identifies national conservation concern and does not, on its own, determine whether the project will adversely affect an SCI population. The classification is considered together with the site-specific population trend, distribution target and local use of the areas potentially affected by vessel activity. In contrast, populations that are not of conservation concern typically exhibit more adaptability to impacts (**Table 5-3**).

Table 5-3: Sensitivity criteria.

Sensitivity	Definition
High	Receptor population has a very limited or no tolerance of effect. e.g., likely to have no capacity to absorb change, a population level effect very likely to occur. Likely to be limited to populations with poor or very poor existing conservation status - BoCCI Red List

Sensitivity	Definition
Medium	Receptor population has limited tolerance of effect. e.g., very minor capacity to absorb change, so a population effect possible. Likely to include but not be limited to populations with poor existing conservation status - BoCCI Amber List
Low	Receptor population has some tolerance of effect. e.g., likely to have minor capacity to absorb additional mortality or reduction in productivity or habitat loss, so a population level effect unlikely - BoCCI Green List
Negligible	Receptor population generally tolerant of effect. e.g., likely to have moderate capacity to absorb additional mortality or reduction in productivity or habitat loss, so a population effect very unlikely.

Proposed dredge area habitat suitability

Habitat suitability was assessed specifically in relation to the potential for birds to occur within, or immediately adjacent to, areas while dredging is taking place. This differs from a general assessment of habitat suitability across Tralee Bay Complex SPA.

The proposed Inner Tralee Bay dredge area is predominantly subtidal, with limited overlap with intertidal habitat. The Outer Tralee Bay dredge area does not overlap Tralee Bay Complex SPA. Consequently, species whose use of the northern part of Inner Tralee Bay is predominantly associated with exposed intertidal, supratidal or terrestrial habitat have limited spatial and temporal interaction with active dredging. Intertidal foraging and roosting generally occurs when these areas are exposed and are therefore inaccessible to dredging vessels.

The strongest direct overlap occurs for Mallard, Black-headed Gull and Common Gull, which use subtidal habitat in northern Inner Tralee Bay for foraging. The NPWS waterbird survey recorded Mallard foraging in both intertidal and subtidal habitats and recorded subtidal foraging within Inner Tralee Bay, including Spa. Black-headed Gull also made regular use of Fenit, Spa and Blennerville for subtidal foraging, with subtidal foraging becoming proportionally more important during the high-tide survey. Common Gull was widespread throughout the SPA and used intertidal, subtidal and terrestrial habitats.

Other screened-in SCIs may occur within northern Inner Tralee Bay, but their main foraging and/or roosting habitat either does not overlap the proposed dredging area, is primarily intertidal and available principally when dredging vessels cannot operate over it, or occurs more extensively elsewhere within Tralee Bay Complex SPA. Inner Tralee Bay forms only one component of a much larger SPA containing extensive alternative feeding and roosting habitat. NPWS identifies the inner bay as containing extensive intertidal sand

and mudflats important to migratory waterbirds, while the wider SPA also includes Barrow Harbour, Carrahane Strand, the western shore of Tralee Bay and Lough Gill.

Habitat preference follows that identified for the species in Furness et al. (2012, 2013) (Table 5-4).

Table 5-4: Suitability and use of habitat within the proposed dredge areas by screened-in bird SCIs, based on NPWS (2014) distribution data and species ecology. A score of 1 represents direct use of habitat within the active dredging area, while a score of 4 represents little or no functional overlap with active dredging.

Bird species	Species Habitat Preference (Furness et al., 2012; 2013)	Suitability Score
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>)	Not identified in these papers.	N/A
Shelduck (<i>Tadorna tadorna</i>)	Sheltered estuaries, tidal mudflats and shallow coastal waters used for benthic invertebrate feeding.	3
Wigeon (<i>Mareca penelope</i>)	Coastal and estuarine shallows with aquatic vegetation. Feeding is strongly associated with seagrass, algae and other vegetation.	3
Teal (<i>Anas crecca</i>)	Not identified in these papers.	N/A
Mallard (<i>Anas platyrhynchos</i>)	Broad wetland generalist using shallow freshwater, brackish and coastal habitats for feeding and roosting.	1
Pintail (<i>Anas acuta</i>)	Wetlands, estuaries and sheltered coastal habitats used for feeding and daytime roosting during the non-breeding season.	3
Scaup (<i>Aythya marila</i>)	Shallow coastal waters, sheltered bays and estuaries, with benthic molluscs forming important prey.	3
Oystercatcher (<i>Haematopus ostralegus</i>)	Intertidal rocky and sedimentary shores, especially areas supporting bivalves and other benthic invertebrates.	3
Golden Plover (<i>Pluvialis apricaria</i>)	Principally open terrestrial habitats for feeding, with coastal tidal flats and associated areas used for roosting.	4
Grey Plover (<i>Pluvialis squatarola</i>)	Coastal estuaries, mudflats and other intertidal habitats supporting polychaetes, molluscs and crustaceans.	3
Lapwing (<i>Vanellus vanellus</i>)	Not identified in these papers.	N/A
Dunlin (<i>Calidris alpina alpina</i>)	Non-breeding birds are strongly associated with intertidal mudflats and other exposed coastal sediments supporting marine invertebrate prey.	3
Black-tailed Godwit (<i>Limosa limosa</i>)	Coastal estuaries and muddy intertidal flats, with supplementary use of grassland and freshwater habitats.	3
Bar-tailed Godwit (<i>Limosa lapponica</i>)	Low-lying coastal shores and major estuaries, feeding chiefly on intertidal invertebrates.	3
Curlew (<i>Numenius arquata</i>)	Estuaries, intertidal mudflats, saltmarsh and adjacent terrestrial habitats used for feeding and roosting.	3
Redshank (<i>Tringa totanus</i>)	Intertidal mudflats, tidal creeks and shallow coastal margins supporting benthic invertebrate prey.	3
Turnstone (<i>Arenaria interpres</i>)	Not identified in these papers.	N/A
Black-headed Gull (<i>Chroicocephalus ridibundus</i>)	Flexible generalist using inshore waters, estuaries, intertidal areas and terrestrial habitats for feeding and resting.	1
Common Gull (<i>Larus canus</i>)	Flexible coastal and inshore generalist using intertidal and shallow marine areas, with fish and invertebrate prey.	1
Shag (<i>Phalacrocorax aristotelis</i>)	Coastal marine waters where birds dive for fish in the water column and near the seabed.	4

Species Habitat Flexibility

The habitat use flexibility scores are based on Garthe & Hüppop (2004) and Furness et al. (2012, 2013). The habitat flexibility scores indicate the degree to which a species is associated with particular marine habitat characteristics. Scoring goes from 1 to 5 with 1 indicating a species is very flexible in habitat use and to 5 indicating the species is reliant on specific habitat characteristics. N/A indicates that an equivalent published score was not available and does not imply that the species lacks alternative habitat (**Table 5-5**).

Table 5-5: Habitat flexibility scores (sensu Furness et al., 2013).

Bird species	Flexibility scores
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>)	N/A
Shelduck (<i>Tadorna tadorna</i>)	N/A
Wigeon (<i>Mareca penelope</i>)	N/A
Teal (<i>Anas crecca</i>)	N/A
Mallard (<i>Anas platyrhynchos</i>)	N/A
Pintail (<i>Anas acuta</i>)	N/A
Scaup (<i>Aythya marila</i>)	4
Oystercatcher (<i>Haematopus ostralegus</i>)	N/A
Golden Plover (<i>Pluvialis apricaria</i>)	N/A
Grey Plover (<i>Pluvialis squatarola</i>)	N/A
Lapwing (<i>Vanellus vanellus</i>)	N/A
Dunlin (<i>Calidris alpina alpina</i>)	N/A
Black-tailed Godwit (<i>Limosa limosa</i>)	N/A
Bar-tailed Godwit (<i>Limosa lapponica</i>)	N/A
Curlew (<i>Numenius arquata</i>)	N/A
Redshank (<i>Tringa totanus</i>)	N/A
Turnstone (<i>Arenaria interpres</i>)	N/A
Black-headed Gull (<i>Chroicocephalus ridibundus</i>)	2
Common Gull (<i>Larus canus</i>)	2
Shag (<i>Phalacrocorax aristotelis</i>)	3

Assessment of the significance of the effects

The significance categories in **Table 5-6** are used to describe the anticipated ecological effect. These categories do not replace the Article 6(3) test. An effect described as slight remains below the significant category in this framework and does not, by itself, establish an adverse effect on the integrity of a European site.

Table 5-6: Significance of effects.

Significance of effects	Definition
Imperceptible	An effect capable of measurement but without significant consequences.
Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.

Significance of effects	Definition
Moderate effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant effects	An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.
Very significant effects	An impact which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Profound effects	An impact which obliterates sensitive characters.

The species-level assessment is presented in **Table 5-7**. The potential for above-water visual and noise disturbance is primarily determined by whether birds are likely to be present within or close to the area being actively dredged. The proposed Inner Tralee Bay dredge ground is predominantly subtidal. Although numerous screened-in SCIs use the wider northern Inner Tralee Bay area, much of this use is associated with intertidal feeding and roosting habitat. Such habitat is principally available to birds when exposed at lower tidal states, when dredging vessels cannot operate over it. Therefore, occurrence within the same broad NPWS survey subsite does not necessarily represent simultaneous exposure to dredging activity.

Mallard, Black-headed Gull and Common Gull differ from the other screened-in SCIs because each uses subtidal habitat in northern Inner Tralee Bay for foraging. These species therefore have a direct spatial and temporal pathway for behavioural disturbance from an operating dredging vessel. Any response is expected to comprise temporary interruption of feeding or short-distance displacement while a vessel is present. Because the disturbance is temporary, mobile and restricted to the immediate vicinity of individual vessels, and because extensive alternative feeding habitat remains available elsewhere within Inner Tralee Bay and the wider SPA, the effect on each of these three species is assessed as Slight.

For the remaining SCIs, direct interaction with active dredging is substantially more limited. Where species use northern Inner Tralee Bay, their relevant feeding or roosting habitat is predominantly intertidal, supratidal or terrestrial and therefore does not generally coincide spatially and temporally with active dredging. Other important feeding and roosting areas also occur throughout the wider SPA. Effects on these species are therefore assessed as Imperceptible or Not significant, with the more precautionary Not significant classification applied to species with comparatively high published sensitivity to disturbance.

The Outer Tralee Bay dredging area does not overlap Tralee Bay Complex SPA. Consequently, no direct disturbance of feeding or roosting SCIs within the SPA is predicted from dredging in the Outer Tralee Bay ground.

Table 5-7: Assessment of the significance of effects on screened in SCIs.

Bird species	Disturbance	Population sensitivity BoCCI4	Habitat suitability	Habitat flexibility	Description of effect	Significance of effects
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>)	N/A	Medium – BoCCI Amber List	N/A	N/A	Very limited interaction with active dredging. Main feeding habitat is intertidal and extensive alternative habitat occurs throughout the SPA.	Imperceptible
Shelduck (<i>Tadorna tadorna</i>)	5	Medium – BoCCI Amber List	3	N/A	Predominantly intertidal feeding habitat does not generally coincide temporally with active dredging. High generic disturbance sensitivity is acknowledged, but exposure is limited.	Not significant
Wigeon (<i>Mareca penelope</i>)	5	High – BoCCI Red List	3	N/A	Main feeding habitat is vegetated intertidal/shallow habitat, with limited simultaneous exposure to active dredging and extensive alternative habitat elsewhere in the SPA.	Not significant
Teal (<i>Anas crecca</i>)	N/A	Medium – BoCCI Amber List	N/A	N/A	Principal concentrations occur outside the proposed dredge ground. Any interaction with vessels would be brief and localised.	Imperceptible
Mallard (<i>Anas platyrhynchos</i>)	2	Low – BoCCI Green List	1	N/A	Direct overlap with subtidal foraging habitat in northern Inner Tralee Bay. Dredging may cause temporary interruption of feeding or local displacement while vessels are present.	Slight effects
Pintail (<i>Anas acuta</i>)	3	High – BoCCI Red List	3	N/A	Principal use is outside the active dredge ground. Limited potential for brief disturbance where birds occur nearby.	Imperceptible effects
Scaup (<i>Aythya marila</i>)	4	Medium – BoCCI Amber List	3	4	Subtidal species, but principal recorded foraging and resting areas do not coincide with the active Inner Tralee Bay dredge ground.	Not significant
Oystercatcher (<i>Haematopus ostralegus</i>)	3	Medium – BoCCI Amber List	3	N/A	Feeding and roosting are mainly associated with intertidal habitat and are temporally separated from dredging over those areas.	Imperceptible effects
Golden Plover (<i>Pluvialis apricaria</i>)	3	High – BoCCI Red List	4	N/A	Dredge ground is unsuitable for regular terrestrial/intertidal feeding. No meaningful direct interaction with active dredging is predicted.	Imperceptible effects

Bird species	Disturbance	Population sensitivity BoCCI4	Habitat suitability	Habitat flexibility	Description of effect	Significance of effects
Grey Plover (<i>Pluvialis squatarola</i>)	3	Medium – BoCCI Amber List	3	N/A	Predominantly intertidal feeding and roosting; little simultaneous exposure to active dredging.	Imperceptible effects
Lapwing (<i>Vanellus vanellus</i>)	N/A	High – BoCCI Red List	N/A	N/A	Terrestrial, supratidal and intertidal use has little functional overlap with active subtidal dredging.	Imperceptible effects
Dunlin (<i>Calidris alpina alpina</i>)	3	High – BoCCI Red List	3	N/A	Predominantly intertidal feeding and roosting, temporally separated from dredging over these areas.	Imperceptible effects
Black-tailed Godwit (<i>Limosa limosa</i>)	3	Medium – BoCCI Amber List	3	N/A	Principal feeding habitat is muddy intertidal flat. Direct interaction with active dredging is very limited.	Imperceptible effects
Bar-tailed Godwit (<i>Limosa lapponica</i>)	3	Medium – BoCCI Amber List	3	N/A	Predominantly intertidal feeding; extensive equivalent habitat occurs elsewhere within the SPA.	Imperceptible effects
Curlew (<i>Numenius arquata</i>)	5	High – BoCCI Red List	3	N/A	High generic disturbance sensitivity, but direct exposure is limited because feeding is mainly intertidal or terrestrial and extensive alternative habitat remains available.	Not significant
Redshank (<i>Tringa totanus</i>)	3	High – BoCCI Red List	3	N/A	Predominantly intertidal feeding and roosting and therefore limited simultaneous exposure to active dredging.	Imperceptible effects
Turnstone (<i>Arenaria interpres</i>)	N/A	Medium – BoCCI Amber List	N/A	N/A	Primarily associated with intertidal shoreline habitat; no important subtidal interaction with the proposed dredging identified.	Imperceptible effects
Black-headed Gull (<i>Chroicocephalus ridibundus</i>)	2	High – BoCCI Red List	1	2	Direct overlap with regularly used subtidal foraging habitat in northern Inner Tralee Bay. Temporary feeding interruption or local displacement may occur during vessel presence.	Slight effects
Common Gull (<i>Larus canus</i>)	2	Medium – BoCCI Amber List	1	2	Direct overlap with subtidal foraging habitat in northern Inner Tralee Bay. Temporary feeding interruption or local displacement may occur during vessel presence.	Slight effects

Bird species	Disturbance	Population sensitivity BoCCI4	Habitat suitability	Habitat flexibility	Description of effect	Significance of effects
Shag (<i>Phalacrocorax aristotelis</i>)	3	Medium – BoCCI Amber List	4	3	Outer Tralee Bay dredging does not overlap Magharee Islands SPA, breeding colonies, roosting habitat or identified important feeding areas.	Imperceptible effects

**For Common Gull, the Slight effect relates to the non-breeding SCI population of Tralee Bay Complex SPA and direct subtidal foraging overlap within Inner Tralee Bay. The Outer Tralee Bay dredge ground does not overlap Magharee Islands SPA; effects on the Common Gull SCI of that SPA are therefore assessed as Imperceptible.*

Roosting distribution

The Roosting habitat does not provide a material interaction pathway for the proposed dredging. The NPWS surveys identified a range of intertidal, supratidal and terrestrial roosting locations throughout Tralee Bay Complex SPA. Although some of these occur within the same broad northern Inner Tralee Bay subsites as the proposed dredge ground, the relevant intertidal roosting areas are used when exposed and are therefore not simultaneously available to dredging vessels.

The proposed activity will not remove, occupy or modify any intertidal, supratidal or terrestrial roosting habitat. Consequently, disturbance of roosting birds is not predicted to occur at a frequency or intensity capable of causing displacement from an important roost. The extensive distribution of alternative roosting habitat throughout Tralee Bay Complex SPA provides additional resilience to any occasional disturbance associated with vessel transit.

The potential effect of above-water visual and noise disturbance on the screened-in SCIs is therefore associated mainly with foraging birds using subtidal habitat rather than with roosting birds. Mallard, Black-headed Gull and Common Gull are the only screened-in SCIs for which sufficient spatial and temporal overlap with active subtidal dredging has been identified to warrant a Slight effect classification.

The Conservation Objectives for the non-breeding SCIs of Tralee Bay Complex SPA require long-term population trends to remain stable or increase and no significant decrease in the range, timing or intensity of use of areas other than that arising from natural patterns of variation. The localised and temporary behavioural disturbance predicted for Mallard, Black-headed Gull and Common Gull will not materially reduce the availability of foraging habitat or alter the range, timing or intensity of use of the SPA by these species. For the remaining SCIs, the absence of substantial spatial and temporal overlap with active dredging means that these conservation objective targets will not be undermined.

Magharee Islands SPA

The screened-in SCIs of Magharee Islands SPA are Shag and Common Gull. The proposed Outer Tralee Bay dredge ground does not overlap Magharee Islands SPA and does not overlap the breeding islands, nesting habitat or associated roosting and resting areas of these SCIs. Dredging will therefore not directly disturb birds occupying the SPA.

Although Shag and Common Gull are mobile and may occur elsewhere within Tralee Bay, there is no evidence that the proposed Outer Tralee Bay dredge ground represents an important or irreplaceable foraging area for the Magharee Islands SPA populations. The proposed activity will not create a barrier to movement or prevent

access between the breeding colonies and wider marine feeding habitat. Any response by an individual bird encountering a dredging vessel outside the SPA would be brief and localised.

Above-water visual and noise disturbance will therefore have an Imperceptible effect on the Shag and Common Gull SCIs of Magharee Islands SPA and will not undermine the population, productivity, disturbance or connectivity targets of the site.

Annex II Qualifying Interests

The Annex II features assessed are Otter [1355] of Tralee Bay and Magharees Peninsula, West to Cloghane SAC, Castlemaine Harbour SAC and Lower River Shannon SAC and Grey Seal [1364] of Blasket Islands SAC.

Otter

The Conservation Objectives for Otter require no significant decline in distribution, terrestrial habitat, marine habitat, freshwater habitat, couching sites and holts or available fish biomass, together with no significant increase in barriers to connectivity. The current Conservation Objectives for Tralee Bay and Magharees Peninsula, West to Cloghane SAC identify approximately 702.2 ha of marine otter habitat, mapped principally as an 80 m strip on the marine side of the high water mark.

Research on coastal otters found that most marine foraging dives occurred close to shore, with 98% recorded within 80 m of the shoreline. Coastal females used wider group ranges of approximately 4.7 km and 6.4 km, with a further range of approximately 14 km. Individuals had core areas in which they were observed for more than half of the time but also used the wider group range. This demonstrates structured and repeated use of coastal ranges but does not indicate exclusive dependence on a single foraging point (Kruuk and Moorhouse, 1991).

The project does not involve shoreline works, removal of bankside vegetation, interference with holts or couching sites, or obstruction of coastal or estuarine movement routes. An otter foraging or commuting near an operating vessel could temporarily avoid the immediate area. The spatial extent of any response would be limited to the vicinity of the vessel and normal use could resume after it moved away. The activity would not cause long-term exclusion from a coastal range or prevent access to alternative shoreline habitat.

The project is outside Castlemaine Harbour SAC and Lower River Shannon SAC and will not disturb habitat, holts or couching sites within either site. Any functionally connected individual entering Tralee Bay would be exposed to the same temporary and localised vessel presence. The project will not cause a significant decline in otter distribution, marine habitat, couching sites or holts, available fish biomass or connectivity in any of the three SACs.

Grey seal

Grey seal is a Qualifying Interest of Blasket Islands SAC, approximately 48.81 km from the proposed dredge areas. The Conservation Objectives require maintenance of access to suitable habitat, breeding behaviour, moulting behaviour, resting behaviour and population composition, with human activities occurring at levels that do not adversely affect the population.

The project does not occur within the SAC or affect a designated breeding, moulting or resting site. A grey seal foraging or transiting through Tralee Bay could temporarily avoid an operating vessel. This would not prevent movement through the bay, create a barrier to the Blasket Islands SAC or restrict access to suitable habitat. Above-water visual and noise disturbance will not undermine the relevant population, access, breeding, moulting or resting targets.

5.2.5.2. Mitigation measures

To minimise disturbance of subtidally foraging Mallard, Black-headed Gull and Common Gull within Inner Tralee Bay, active dredging shall avoid large aggregations (> 100 individuals) of these species where they are observed feeding within the proposed dredge area in Inner Tralee Bay.

Where a large foraging aggregation of Mallard, Black-headed Gull or Common Gull is present within the proposed dredge area in Inner Tralee Bay, the vessel shall maintain 100 m separation from the aggregation and dredging shall be undertaken elsewhere within the licensed fishing ground until the birds have moved naturally from the area.

5.2.5.3. Assessment conclusion

Above-water visual and noise disturbance is expected to result mainly in temporary localised effects on birds foraging close to an operating vessel. The main interaction pathway is with Mallard, Black-headed Gull and Common Gull foraging in subtidal habitat within northern Inner Tralee Bay. Effects on these three SCIs are assessed as Slight.

For the remaining screened-in bird SCIs, interaction with active dredging is limited because their main feeding and roosting habitat is predominantly intertidal, supratidal or terrestrial, occurs outside the proposed dredge areas, or is widely available elsewhere within the SPA. Effects on these species are therefore assessed as Imperceptible or Not significant.

No significant effect on roosting birds is predicted. The Outer Tralee Bay dredge area does not overlap Tralee Bay Complex SPA or Magharee Islands SPA. Subject to implementation of the proposed mitigation measure

for large foraging aggregations of Mallard, Black-headed Gull and Common Gull, adverse effects on site integrity from above-water visual and noise disturbance can be excluded.

5.2.6. Underwater noise disturbance

As explained in **Section 4.3.6**, vessel engines, propellers and the deployment, towing and retrieval of dredging gear generate continuous and intermittent underwater sound. Exposure may cause temporary masking, avoidance or behavioural displacement in acoustically sensitive marine species. The magnitude and spatial extent of any response depend on source level, exposure duration, distance, sound propagation, background noise and species-specific hearing sensitivity.

The conservation features assessed under this pathway are Bottlenose Dolphin [1349] of Lower River Shannon SAC [002165] and Grey Seal [1364] and Harbour Porpoise [1351] of Blasket Islands SAC [002172]. The assessment considers potential effects on behaviour, distribution, access to suitable habitat and use of the waters within and surrounding the dredging areas.

5.2.6.1. Impact assessment

Marine dredging assessments describe predominantly continuous, low-frequency sound, with the greatest exposure generally occurring close to the operating dredger and decreasing with distance (NPWS, 2014; O'Brien and Berrow, 2017). This provides context for the types of effect to consider, but the sound output of the harbour dredging, as assessed for the Fenit Harbour NIS assisting with a Dumping at Sea application, cannot be directly correlated to the smaller oyster dredges used in Tralee Bay.

The Project would continue an established fishery within the defined Inner and Outer Tralee Bay dredging areas. It proposes no increase in vessel numbers or overall fishing activity. Between 78 and 79 oyster dredge licences have been issued annually over the past decade, although this does not establish how many vessels operate at one time. Fishing would take place during daylight between September and April. These characteristics indicate recurring, moving sources of vessel and gear sound within the fishing areas, rather than a new fixed sound source or high-energy impulsive activity. On the nature of the equipment described, auditory injury is not anticipated. The more relevant potential effects are temporary masking, interruption of behaviour or avoidance by an animal close to an operating vessel.

Bottlenose dolphins associated with Lower River Shannon SAC have been recorded using Tralee Bay, so exposure of animals from the designated population cannot be dismissed solely because the dredging areas lie outside that SAC. Previous records indicate use of the wider bay, particularly during summer, while

occurrence during the fishing season remains possible (O'Brien and Berrow, 2017). An animal encountering an operating vessel could temporarily change its behaviour or move away. The Project would not introduce a new fishing area or increase existing vessel activity, and the dredging areas do not overlap the habitat or critical areas mapped for bottlenose dolphin within Lower River Shannon SAC. A temporary response within Tralee Bay is not expected to restrict access to those areas or adversely affect the designated population.

Grey seals may forage beyond Blasket Islands SAC and could encounter fishing vessels in Tralee Bay. The September-April season overlaps part of the species' breeding and moulting periods, but dredging would occur approximately 48.81 km from the SAC and away from its breeding, moulting and resting sites. Underwater sound from a vessel in Tralee Bay could cause a local response by an animal nearby. The activity does not provide a pathway for disturbance of haul-out sites or sustained exclusion from habitat within Blasket Islands SAC and is not expected to adversely affect its designated grey seal population.

Harbour porpoises may also use waters outside Blasket Islands SAC. Small-vessel sound can elicit behavioural responses in porpoises, so an individual close to an operating oyster vessel could temporarily avoid it. The fishing areas are approximately 48.81 km from the SAC, and the Project would not increase the established level of fishing activity or obstruct access to habitat within the site. The available records do not establish sustained use of the proposed dredging areas by the designated harbour porpoise community. Local responses to vessels in Tralee Bay are not expected to cause persistent displacement from Blasket Islands SAC or adversely affect that community.

5.2.6.2. Assessment conclusion

The proposed dredging would continue established small-vessel fishing within defined areas, with no increase in vessel numbers relative to the 15 years of the fishery. Underwater sound could cause temporary behavioural responses in Bottlenose Dolphin, Grey Seal or Harbour Porpoise close to an operating vessel. However, having regard to the source characteristics, location of the fishing areas and conservation objectives of Lower River Shannon SAC and Blasket Islands SAC, these responses are not expected to result in persistent habitat exclusion or an adverse effect on the designated populations. Adverse effects on the integrity of SACs in the Zol from underwater noise can therefore be excluded, and no additional mitigation is required for this impact pathway beyond the current management measures in place for the Tralee Bay oyster fishery.

5.3. Summary of mitigation measures

To minimise disturbance of subtidally foraging Mallard, Black-headed Gull and Common Gull within Inner Tralee Bay, active dredging shall avoid large aggregations (> 100 individuals) of these species where they are observed foraging within the proposed dredge area in Inner Tralee Bay.

Where a large foraging aggregation of Mallard, Black-headed Gull or Common Gull is present within the proposed dredge area in Inner Tralee Bay, the vessel shall maintain 100 m separation from the foraging aggregation and dredging shall be undertaken elsewhere within the licensed fishing ground until the birds have moved naturally from the area.

With the above mitigation, continued implementation of the existing fishery management measures under the Oyster Fishery Order by the Tralee Oyster Fisheries Society, and with dredging confined to the proposed Inner and Outer Tralee Bay dredging areas, no further mitigation is considered necessary. The assessment concluded that the Project will not adversely affect the integrity of the European sites assessed in this NIS, in view of their conservation objectives.

5.4. Assessment of in-combination effects

No in-combination projects or plans were carried through to Stage 2 Appropriate Assessment.

5.5. Conclusion

This report has been prepared having regard to the relevant provisions of Council Directive 92/43/EEC and the European Communities (Birds and Natural Habitats) Regulations 2011, as amended.

This NIS has been prepared because the Screening for Appropriate Assessment could not exclude, on the basis of objective scientific information, the possibility that the proposed licensing of commercial native oyster (*Ostrea edulis*) dredging in Inner and Outer Tralee Bay, either alone or in combination with other plans or projects, may have likely significant effects on relevant European sites. The Project comprises an established seasonal fishery within defined dredging areas in Tralee Bay.

This NIS has examined and analysed, in light of the best scientific knowledge available, the potential effects of the proposed dredging on the Qualifying Interests of SACs and the Special Conservation Interests of SPAs

brought forward to Stage 2, having regard to the relevant impact pathways and the conservation objectives of those European sites. In accordance with the Stage 2 Appropriate Assessment test, the assessment has considered whether adverse effects on site integrity can be excluded, taking account of the mitigation measures relied upon to avoid or reduce identified effects.

Mitigation measures have been identified where required to avoid or reduce potential effects on the conservation objectives of the relevant Qualifying Interests and Special Conservation Interests. No plans or projects were identified that required further assessment of in-combination effects at Stage 2.

Following examination, analysis and evaluation of the relevant information, including the nature and extent of the predicted effects of the proposed dredging and the mitigation measures identified in this NIS, it is objectively concluded that the proposed licensing of commercial native oyster dredging in Inner and Outer Tralee Bay will not adversely affect, either directly or indirectly, the integrity of any European site, either alone or in combination with other plans or projects. There is no reasonable scientific doubt in relation to this conclusion.

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7. Appendices

7.1. Appendix 1

Native oyster (*Ostrea edulis*) dredging impact study

Tralee Bay, Blacksod Bay & Lough Swilly

Inland Fisheries Ireland

Native oyster (*Ostrea edulis*) dredging impact study

Tralee Bay, Blacksod Bay & Lough Swilly

B. Dickerson, Dr A. Long, A. Khokhlova

AQUAFACT REF: P21371

2026

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Report Approval Sheet

Client	Inland Fisheries Ireland
Report Title	Native oyster (<i>Ostrea edulis</i>) dredging impact study Tralee Bay, Blacksod Bay & Lough Swilly
Job Number	P21371
Report Status	Final v6
Issue Date	12/10/2026

Rev	Status	Issue Date	File Name	Author(s)	Approved By
1	Draft v1	01/09/2026	P21371_IFI_DredgingImpact_Draftv1	BD, AL, AK	AL
2	Draft v2	08/09/2026	P21371_IFI_DredgingImpact_Draftv2	BD, AL, AK	AL
3	Draft v3	11/09/2026	P21371_IFI_DredgingImpact_Draftv3	BD, AL, AK	AL
4	Draft v4	14/09/2026	AQUAFACT_OysterDredgingImpact_Draftv4_P21371	BD, AL, AK	AL
5	Final v5	23/09/2026	AQUAFACT_OysterDredgingImpact_v5_P21371	BD, AL, AK	AL
6	Final v6	12/10/2026	AQUAFACT_OysterDredgingImpact_v6_P21371	BD, AL, AK	AL

Contents

1.	Introduction.....	7
1.1.	Project Background	7
1.2.	Study Objectives and Scope	8
1.3.	Description of the licensed native oyster fisheries	9
1.3.1.	License numbers over time.....	9
1.3.2.	Blacksod Bay	11
1.3.3.	Tralee Bay	12
1.3.4.	Lough Swilly	12
2.	Baseline review of Conservation Objectives and Qualifying Interests	14
2.1.1.	Blacksod Bay	14
2.1.2.	Tralee Bay	19
2.1.3.	Lough Swilly	26
2.2.	Marine Institute Native Oyster Survey data	32
2.2.1.	Historical context.....	32
2.2.2.	Data sources, survey methods and data limitations	34
2.2.3.	Inner Tralee Bay.....	36
2.2.4.	Outer Tralee Bay	41
2.2.5.	Lough Swilly	46
2.2.6.	Blacksod Bay	55
2.2.7.	Synthesis of stock condition relevant to dredging assessment.....	57
3.	Assessment of dredging impact pathways	59

3.1.	Impact Assessment	62
3.1.1.	Physical disturbance of oyster dredging.....	64
3.1.2.	Removal of oysters from the population.....	73
3.1.3.	Sediment resuspension and smothering	79
3.1.4.	Potential interaction with other sensitive benthic communities	86
4.	Evaluation Against NPWS Guidance and SAC Integrity	95
4.1.	Blacksod Bay.....	95
4.2.	Tralee Bay.....	96
4.3.	Lough Swilly.....	97
4.4.	Assessment conclusion	98
5.	Potential fisheries management measures.....	99
5.1.	Total Allowable Catch	99
5.2.	Extension of the seasonal closure.....	100
5.3.	Participation and effort controls.....	101
5.4.	Spatial closures.....	101
5.5.	Control of non-native species, disease monitoring and biosecurity.....	102
5.6.	Stock, catch and fishing effort monitoring and adaptive management	103
5.7.	Restoration and recruitment enhancement	103
5.8.	Updated Lough Swilly Native Oyster Fishery Management Plan.....	104
6.	References	106

Table of Figures

Figure 2.1: Licensed native oyster dredging area and distribution of benthic community types in Blacksod Bay.	18
Figure 2.2: Proposed native oyster dredge areas and distribution of benthic community types in Tralee Bay.	24
Figure 2.3: Licensed native oyster dredging area and distribution of benthic community types in Lough Swilly.	30
Figure 2.4 Marine Institute raised native oyster (<i>Ostrea edulis</i>) biomass estimates for Inner Tralee Bay. Error bars show 95% highest density intervals (HDIs).....	38
Figure 2.5 Annual shell-length distributions of native oyster (<i>Ostrea edulis</i>) measured during Marine Institute surveys of Inner Tralee Bay. The dashed line indicates the 76-mm minimum landing size.	39
Figure 2.6: Latest available (2025) biomass density spatial distribution data for native oyster (<i>Ostrea edulis</i>) within the surveyed Inner Tralee Bay oyster grounds (provided by the Marine Institute).	40
Figure 2.7 Raised native oyster (<i>Ostrea edulis</i>) biomass estimates for Outer Tralee Bay, 2020–2026. Error bars show 95% highest density intervals (HDIs).....	42
Figure 2.8 Mean estimated native oyster (<i>Ostrea edulis</i>) biomass per surveyed square kilometre in Outer Tralee Bay, 2020–2026.	42
Figure 2.9 Annual shell-length distributions of native oyster (<i>Ostrea edulis</i>) measured during Marine Institute surveys of Outer Tralee Bay. The dashed line indicates the 76-mm minimum landing size.....	43
Figure 2.10: Latest available (2026) biomass density spatial distribution data for native oyster (<i>Ostrea edulis</i>) within the surveyed Outer Tralee Bay oyster grounds (provided by the Marine Institute).	45
Figure 2.11 Raised native oyster (<i>Ostrea edulis</i>) biomass estimates for Lough Swilly, 2021–2026. Error bars show 95% highest density intervals (HDIs).....	47
Figure 2.12 Raised Pacific oyster (<i>Magallana gigas</i>) biomass estimates for Lough Swilly, 2021–2026. Error bars show 95% highest density intervals (HDIs).....	49
Figure 2.13 Size distribution of native oyster (<i>Ostrea edulis</i>) recorded during Marine Institute surveys of Lough Swilly, 2021–2026. The vertical dashed line indicates the statutory MLS of 76 mm.	50

Figure 2.14 Size distribution of Pacific oyster (<i>Magallana gigas</i>) recorded during Marine Institute surveys of Lough Swilly, 2021–2026.	51
Figure 2.15: Latest available (2026) native oyster (<i>Ostrea edulis</i>) biomass density data within the surveyed Lough Swilly oyster grounds (provided by the Marine Institute).....	52
Figure 2.16: Latest available (2026) for Pacific oyster (<i>Magallana gigas</i>) biomass density within the surveyed Lough Swilly oyster grounds (provided by the Marine Institute).....	54
Figure 2.17 Size distribution of native oyster (<i>Ostrea edulis</i>) recorded during the 2011 Marine Institute survey of Blacksod Bay. The vertical dashed line indicates the statutory MLS of 76 mm.....	56
Figure 2.18 Spatial distribution of native oyster (<i>Ostrea edulis</i>) biomass density in 2011 for Blacksod Bay recorded by the Marine Institute (Tully & Clarke, 2012).	57

List of Tables

Table 1-1: Management orders for relevant dredge oyster fisheries, adapted from Tully & Clarke, 2012.....	10
Table 1-2: Oyster dredge licences issued by IFI from 2010 to 2026.....	10
Table 2-1: Conservation features of the Mullet/Blacksod Bay Complex SAC [000470] relevant to oyster dredging on <i>Ostrea edulis</i>	16
Table 2-2: Area and percentage of the licensed native oyster dredging area in Blacksod Bay occupied by each mapped benthic community type.	19
Table 2-3: Conservation features of the Tralee Bay and Magharees Peninsula, West to Cloghane SAC relevant to oyster dredging on <i>Ostrea edulis</i>	22
Table 2-4: Area and percentage of the proposed dredge areas in Outer Tralee occupied by each mapped benthic community type.	25
Table 2-5: Area and percentage of the proposed dredging area in Inner Tralee occupied by each mapped benthic community type. 2.348% is unaccounted for as this area within the proposed dredge area is not within the SAC and is not mapped	25
Table 2-6: Conservation features of the Lough Swilly SAC relevant to oyster dredging on oyster beds.	28
Table 2-7: Area and percentage of the licensed native oyster dredging area in Lough Swilly occupied by each mapped benthic community type.	31
Table 2-8 Summary of Marine Institute oyster stock indicators for Blacksod Bay, Inner and Outer Tralee Bay and Lough Swilly, including raised biomass estimates, biomass per surveyed area and native oyster size-structure indicators.	36
Table 2-9 Annual raised biomass trends for Inner Tralee Bay 2010-2025 (Marine Institute, 2025).....	37
Table 2-10 Annual raised biomass trends for Outer Tralee Bay 2020-2025 (Marine Institute, 2025).....	41
Table 2-11 Annual raised biomass trends for <i>O. edulis</i> in Lough Swilly 2011-2025 (Marine Institute, 2025). .	46
Table 2-12 Annual raised biomass trends for <i>M. gigas</i> in Lough Swilly 2011-2025 (Marine Institute, 2025). .	48
Table 2-13 Summary of latest available Marine Institute oyster stock indicators.....	57

Glossary of terms

Abbreviation	Full term
AA	Appropriate Assessment
DAFM	Department of Agriculture, Food and the Marine
DE	Dredge efficiency
HDI	Highest density interval
IFI	Inland Fisheries Ireland
IQR	Interquartile range
MarLIN	Marine Life Information Network
MI	Marine Institute
MLS	Minimum Landing Size
NIS	Natura Impact Statement
NPWS	National Parks and Wildlife Service
SAC	Special Area of Conservation
TAC	Total Allowable Catch

1. Introduction

1.1. Project Background

Inland Fisheries Ireland (IFI) is the statutory body responsible for the protection, management and conservation of the inland fisheries resource within the State under section 7 of the Inland Fisheries Act 2010. As part of its statutory functions, IFI administers oyster fishing licences authorising the use of oyster fishing engines within specified fishery districts. Section 277(1) of the Fisheries (Consolidation) Act 1959 makes it an offence to take oysters from an oyster fishery in a fishery district using an oyster fishing engine unless an oyster fishing licence is in force in respect of that engine and authorises its use in that fishery district.

The native oyster fisheries in Tralee Bay, Blacksod Bay and Lough Swilly occur within or in ecological connection with European sites. In exercising its licensing function, IFI is required to comply with the requirements of Article 6(3) of the Habitats Directive and the European Communities (Birds and Natural Habitats) Regulations 2011, as amended. This requires Screening for Appropriate Assessment to determine whether the licensed activity, either alone or in combination with other plans or projects, is likely to have a significant effect on a European site. Where likely significant effects cannot be excluded on the basis of objective scientific information, Appropriate Assessment is required before a licensing decision may be made.

IFI identified a requirement for a specific Native Oyster Dredging Impact Study to provide supporting scientific information for the Appropriate Assessment process associated with the proposed licensing of native oyster dredging. AQUAFAC, an APEM Group company, was commissioned to prepare one Dredging Impact Study covering Tralee Bay, Blacksod Bay and Lough Swilly, together with a separate Screening for Appropriate Assessment report for each fishery. Where a Screening report determines that likely significant effects cannot be excluded, a Natura Impact Statement may be required to provide the information necessary to inform Stage 2 Appropriate Assessment for the relevant fishery.

This report provides an evidence-based review of the nature, scale, frequency, duration, persistence and reversibility of the potential effects arising from native oyster dredging on *Ostrea edulis* and its associated benthic community within Annex I habitats. The assessment considered whether the activity could affect the qualifying interests, Special Conservation Interests or conservation objectives of the relevant European sites. Particular regard was given to native oyster populations and *Ostrea edulis* dominated communities. In Tralee Bay, the assessment also considered potential interactions with other sensitive benthic communities, including *Mytilus*, *Zostera* and *Sabellaria* dominated communities, where a credible source pathway receptor relationship was identified.

The assessment reviewed the relevant conservation objectives and supporting documents, the spatial relationship between the proposed dredging areas and protected benthic communities, Marine Institute stock survey data, available fishery management and licensing information, and relevant published scientific evidence. Each fishery was assessed separately, having regard to its regulatory framework, management arrangements, fishing activity, stock condition and relationship with the relevant European sites. Existing management measures were considered when evaluating the activity. Where the available evidence indicated that additional controls may be required, further Fisheries Management Measures were identified for consideration through the Appropriate Assessment and licensing processes.

1.2. Study Objectives and Scope

The purpose of this desktop-based Dredging Impact Study was to provide Inland Fisheries Ireland with an evidence-based technical assessment of the potential effects of licensed commercial native oyster dredging in Tralee Bay, Blacksod Bay and Lough Swilly. The report was prepared to inform the Appropriate Assessment process, including the separate Stage 1 Screening for Appropriate Assessment reports required for each area.

The assessment considered the potential for licensed native oyster dredging to give rise to likely significant effects on the qualifying interests, Special Conservation Interests and Conservation Objectives of the relevant Natura 2000 sites. Particular regard was given to native oyster populations, *Ostrea edulis* dominated communities where identified, associated sedimentary and biogenic communities, and other sensitive habitats and species for which a credible source-pathway-receptor relationship was identified.

The report reviewed the site-specific Conservation Objectives, the mapped relationship between proposed dredging areas and relevant habitats and communities, Marine Institute native oyster stock information, available fishery management and licensing information, and relevant published scientific evidence. It assessed the nature, scale, frequency, duration, persistence, and reversibility of the identified dredging pathways. The assessment also identified limitations arising from the absence of data such as effort and post-dredging ecological response data.

Where the available evidence indicated that potential effects could not be excluded with the required degree of scientific certainty, the report identified fisheries management measures for consideration in subsequent stages of the Appropriate Assessment process.

1.3. Description of the licensed native oyster fisheries

1.3.1. License numbers over time

Commercial native oyster dredging in Tralee Bay, Blacksod Bay and Lough Swilly is undertaken using a nominal four foot dredge, equivalent to approximately 1.22 m in width. The dredge is deployed from the rear or side of a fishing vessel and towed in contact with the seabed to capture native oysters. Publicly available information does not specify the weight, tooth or blade configuration, bag construction, tow speed, tow duration, number of tows or daily operating hours associated with oyster dredging in each bay.

The operating periods and temporal controls differ among the three fisheries. Native oyster dredging in Blacksod Bay occurs mainly during February and March, with a small number of fishing days also occurring between September and December. Annual fishing effort is low and usually comprises no more than eight fishing days, although a few additional fishing days may occur in some years.

Commercial native oyster dredging in Tralee Bay and Lough Swilly are undertaken from 1st September to 30th April inclusive, with no commercial dredging taking place between May and August. This cessation encompasses the main spawning and larval settlement period for native oysters. The specific opening dates, fishing days and catch controls applied within the wider authorised period are determined through the management of the fishery.

The licensing and management arrangements also differ among the fisheries. The Tralee Bay native oyster fishery is managed under the Oyster Fishery Order for Brandon Bay, Tralee Bay and Ballyheige Bay, 1981. The Order grants the Tralee Oyster Fisheries Society Limited rights to manage and regulate the oyster beds within the defined area. Native oyster dredging in Blacksod Bay operates within aquaculture licensed areas managed by the North Mayo Oyster Development Co-operative and is also subject to individual IFI oyster dredge licensing. Lough Swilly operates as a public native oyster fishery. No Fishery Order, aquaculture licence for the native oyster fishery or implemented statutory fishery management plan is in effect for Lough Swilly, although individual fishers must apply for a IFI oyster dredge licensing and the applicable vessel registration requirements.

Table 1-1 summarises the main management and licensing framework identified for each fishery and is adapted from Tully and Clarke (2012).

Table 1-1: Management orders for relevant dredge oyster fisheries, adapted from Tully & Clarke, 2012.

Site	SAC	Licensing			Other bivalve species
		Aquaculture	Fishery Order	Public fishery	
Tralee Bay	Yes		Yes		
Blacksod Bay	Yes	Yes			
Lough Swilly	Yes			Yes	Mussels, Pacific Oyster

The naturalised Pacific oyster *Magallana gigas* population in Lough Swilly represents an additional ecological pressure on the native oyster population through potential competition for habitat and other resources (Tully and Clarke, 2012; Marine Institute, 2025).

Table 1-2 presents the annual oyster dredge licence data provided by IFI for the period from 2010 to 2026. Licence numbers indicate the number of operators authorised to participate in a fishery but do not establish the number of active vessels or the intensity of dredging. A licence may not be used during a particular year, while fishing days, numbers of tows, catches and the spatial concentration of activity may vary among licence holders and between years. The licence data were therefore used as an indicator of potential participation and not as a quantitative measure of fishing effort.

Table 1-2: Oyster dredge licences issued by IFI from 2010 to 2026.

Year	Bangor District (includes Blacksod Bay)	Tralee Bay	Lough Swilly
2026	26	79	24
2025	32	79	24
2024	32	79	24
2023	33	79	24
2022	33	79	24
2021	31	79	24
2020	32	79	24
2019	33	79	24
2018	29	79	24
2017	32	79	24
2016	34	79	24
2015	32	79	24
2014	32	78	24
2013	34	78	24
2012	34	78	24
2011	17	78	22
2010	4	0	16

The available licence data for Blacksod Bay relate to the wider Bangor District which includes the Blacksod Bay native oyster fishery. IFI indicated that approximately 70% of licence holders would potentially fish Blacksod Bay. In 2026, this was equivalent to approximately 26 of the 37 licences issued within the Bangor District.

Licence numbers were highest in Tralee Bay, with between 78 and 79 licences issued annually from 2011 to 2026. In Lough Swilly, the number of oyster dredge licences issued increased from 16 in 2010 to 22 in 2011 and 24 in 2012. Licence numbers subsequently remained constant, with 24 licences issued annually from 2012 to 2026. This indicates that potential fishery participation has remained stable over this period.

1.3.2. Blacksod Bay

This oyster bed was originally anthropogenically seeded and managed in the 19th century, before lying dormant until the 20th century when fishers from Mayo, Galway and Donegal started fishing the beds in the late 1970s. The native oyster beds within the aquaculture licensed areas of Inner Blacksod Bay are managed by the North Mayo Oyster Development Co-operative. Recent membership numbers are approximately 143 participants. The Co-operative was formed in 1983 in response to concerns regarding overexploitation of the fishery. In 1993 the Co-operative was successful in their application for an aquaculture licence for three areas. Only eligible Co-operative members operating registered vessels and holding an oyster dredge licence issued by Inland Fisheries Ireland may fish within the licensed areas. Available information indicates that the Co-operative may further restrict the areas fished, fishing hours and number of fishing days within the wider period authorised for dredging. Oyster beds have been closed for several years over the course of this fishery, to support stock recovery. Fishing occurs mainly during February and March, with a small number of fishing days also occurring between September and December. Annual fishing effort is usually limited to no more than eight fishing days, although a few additional fishing days may occur in some years. The aquaculture licence numbers for the three zones where native oysters are fished are T10-028A, T10-028B, and T10-028C.

During the 1980s, the Co-operative purchased mussel shell cultch and distributed it across the oyster beds to provide settlement substrate and support recruitment. Bags of mussel shell were also suspended from buoys in areas where oyster spatfall was known to occur. Following settlement, the shell and attached spat were transferred to the seabed. Other measures implemented by the Co-operative included the hand collection of broodstock from shallow areas of the bay and transferring them to deeper water.

The native oyster dredging involves the use of a four-foot dredge, which is fished from the side or back of a boat. The boundaries of the native oyster sites have been redefined based on the findings of a previous Natura Impact Statement (NIS) assessment carried out in 2017. This report found that the proposed licence areas were incompatible with the conservation of marine habitats and several sensitive marine community types.

Blacksod Bay forms part of the Mullet/Blacksod Bay Complex SAC [000470], which supports a range of marine, coastal, freshwater and terrestrial conservation features. The conservation features particularly relevant to oyster dredging are Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160] and Reefs [1170] (NPWS, 2013a; NPWS, 2014a).

1.3.3. Tralee Bay

The Tralee Bay native oyster fishery is managed under the Oyster Fishery Order (Brandon Bay, Tralee Bay and Ballyheige Bay), 1981, under sections 256 and 260 and subject to section 267 of the Fisheries (Consolidation) Act, 1959 (No. 14 of 1959) and the Foreshore Act, 1933 (No. 12 of 1933). The Order grants the Tralee Oyster Fisheries Society Limited exclusive rights to deposit, propagate, dredge, fish for and take oysters within the area defined by the Order and to maintain and regulate the oyster beds. Commercial fishing is undertaken during a September to April (inclusive) season and is informed by annual Marine Institute stock surveys, catch controls, and supplemented by local experience and historical knowledge of the fishery, as determined by the Society on an annual basis. No commercial dredging takes place between May and August (inclusive) as this is when recruitment is occurring for native oyster and the main growth period. The statutory Minimum Landing Size is 76 mm, while a voluntary Minimum Landing Size of 78 mm is applied within the Tralee Bay fishery as designated by the Society. A total of 79 dredge licences were issued for Tralee Bay in 2026. This number represents authorised participation and does not establish that all of these vessels will actually fish.

Tralee Bay forms part of the Tralee Bay and Magharees Peninsula, West to Cloghane SAC [002070]. The conservation features of main relevance to oyster dredging are Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160], Estuaries [1130], and Reefs [1170]. The *Ostrea edulis* dominated community has an indicative mapped extent of approximately 650 ha within the Large shallow inlets and bays habitat and occurs in two main areas; within the inner bay between Fenit and Spa and in the outer bay off Castlegregory, occurring at depths of approximately 0 to 8 m (NPWS, 2014d).

1.3.4. Lough Swilly

Lough Swilly operates as a public native oyster fishery with no statutory fishery management plan in place. The Lough Swilly Wild Oyster Society Limited was established to represent members of the native oyster fishing community and has promoted the conservation and management of the stock since 2000. The proposed Fishery Natura Plan for 2012–2017 recorded 29 members but also confirmed that the Society did not have legal authority to manage the fishery. The plan was not implemented and did not establish a statutory management framework.

Fishers are required to hold an oyster dredge licence issued by Inland Fisheries Ireland, and participating vessels must meet the applicable sea-fishing vessel registration and licensing requirements, but being a member of the Society is not required to fish for native oysters. A total of 24 dredge licences were recorded for Lough Swilly in 2026. This does not establish the number of licence holders actively fishing or the associated dredging effort. The fishery is regulated by the Minimum Landing Size of 76 mm and the season is operated from the 1st of September to the 30th of April (inclusive).

No current Total Allowable Catch, stock linked annual catch limit or equivalent control on native oyster dredging has been identified for Lough Swilly.

Lough Swilly is situated in the northern part of Co. Donegal, with the inner part of the lough designated as the Lough Swilly SAC [002287]. The conservation feature that are most relevant to oyster dredging is Estuaries [1130], as this encompasses the intertidal and subtidal benthic communities within which the fishery operates. A substantial naturalised population of Pacific oyster (*Magallana gigas*) has been established in the lough,

2. Baseline review of Conservation Objectives and Qualifying Interests

The conservation objectives for Lough Swilly SAC, Tralee Bay SAC and Mullet/Blacksod Bay Complex SAC were reviewed to identify the qualifying interests, community types, and conservation targets that may be affected by native oyster dredging. Particular attention was given to the objective to conserve *Ostrea edulis* dominated communities in a natural condition. For Tralee Bay, the assessment considers potential interactions with other sensitive benthic communities, including *Mytilus*, *Zostera* and *Sabellaria* dominated communities, where these overlap with or occur adjacent to proposed dredging areas. The review identified the key ecological attributes that must be maintained, including habitat distribution, community extent, community structure, characterising species, and the requirement to avoid significant or persistent disturbance. Conservation objectives are the site-specific objectives established to maintain or restore the favourable conservation condition of these features.

For the purposes of this assessment, the scope was limited to the effects of commercial native oyster dredging on *Ostrea edulis*, *O. edulis* dominated communities and other relevant benthic communities identified within the Annex I habitat Qualifying Interests of the relevant SACs, including *Zostera*, *Mytilus*, *Sabellaria* and *Serpula* dominated communities. Potential effects on other Qualifying Interests are outside the scope of this report and will be considered in the corresponding Screening for Appropriate Assessment (AA) reports.

2.1.1. Blacksod Bay

Blacksod Bay forms part of the Mullet/Blacksod Bay Complex SAC [000470], which supports a range of marine, coastal, freshwater and terrestrial conservation features. The Annex I habitat Qualifying Interests relevant to this assessment are Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160] and Reefs [1170]. This assessment considered the effects of commercial native oyster dredging on *Ostrea edulis* and relevant benthic communities associated with these habitats. Potential effects on the remaining Qualifying Interests are outside the scope of this report and will be considered in the corresponding Screening for Appropriate Assessment.

The conservation objective for Mudflats and sandflats not covered by seawater at low tide [1140] is to maintain its favourable conservation condition. This requires the permanent habitat area to remain stable or increase, subject to natural processes, and its constituent benthic communities to be conserved in natural condition (NPWS, 2014a). This conservation feature is relevant where dredging occurs within or adjacent to intertidal areas, as bottom towed fishing gear and associated sediment redistribution could disturb sediments and affect the associated infaunal communities (NPWS, 2014c).

The conservation objective for Large shallow inlets and bays [1160] is to maintain its favourable conservation condition, including the extent and natural condition of its constituent communities. These include extensive sand communities and sensitive *Zostera*, maerl and *Serpula* dominated communities (NPWS, 2014a; NPWS, 2014c). These communities are regarded as keystone communities of high ecological importance and low resilience, and significant anthropogenic disturbance to their extent or quality should be avoided (NPWS, 2014c). As this conservation feature encompasses much of the marine environment within which the oyster fishery operates, the spatial relationship between dredging activity and these communities is a primary consideration.

The conservation objective for Reefs [1170] is to maintain its favourable conservation condition, including the extent, distribution and natural condition of its constituent reef communities. These include intertidal reef, sheltered subtidal reef and *Laminaria* dominated community complexes, together with the sensitive *Serpula* dominated community (NPWS, 2014a; NPWS, 2014c). This conservation feature is relevant where dredging overlaps or occurs adjacent to reef habitat, as direct contact or associated sediment redistribution could affect reef structure, attached biological communities and habitat complexity.

Native oyster *Ostrea edulis* is not a qualifying interest of the SAC but is both the target species of the fishery and an ecological component of the bay's benthic communities, identified as a notable species within the Conservation Objectives document. Native oysters have been recorded within sediment communities in the inner bay (NPWS, 2013a; NPWS, 2014c). Oyster removal, incidental mortality and disturbance of shell material or cultch may therefore be relevant to the objective of maintaining these communities in natural condition.

On the basis of the source-pathway-receptor relationships identified above, Large shallow inlets and bays [1160], Mudflats and sandflats not covered by seawater at low tide [1140] and Reefs [1170] require detailed consideration in the subsequent impact assessment. The assessment considers whether the location, extent, intensity, and frequency of oyster dredging, could alter the extent, distribution, structure, function or natural condition of these conservation features such that the applicable site-specific attributes and targets could not be achieved.

Table 2-1 below shows the site-specific conservation objectives and qualifying interests relevant to the dredging impact assessment on *O. edulis*.

Table 2-1: Conservation features of the Mullet/Blacksod Bay Complex SAC [000470] relevant to oyster dredging on *Ostrea edulis*.

Qualifying interests	Relevant benthic communities	Site-specific objective	Potential interaction(s) with oyster dredging
Mudflats and sandflats not covered by seawater at low tide [1140]	Mobile sand with <i>Bathyporeia guilliamsoniana</i> community; Sand with <i>Angulus tenuis</i> and <i>Pygospio elegans</i> community complex	To maintain	Potentially relevant where dredging or associated sediment redistribution interacts with intertidal sediment communities.
Large shallow inlets and bays [1160]	<i>Zostera</i> dominated community; Maërl dominated community; <i>Serpula vermicularis</i> dominated community complex; Sand with <i>Angulus tenuis</i> and <i>Pygospio elegans</i> community complex; Sand with <i>Gastrosaccus spinifer</i> community complex; Fine sand with <i>Angulus fabula</i> community complex; Intertidal reef community complex; Sheltered subtidal reef community complex; <i>Laminaria</i> dominated community complex	To maintain	Main SAC receptor because it encompasses much of the marine environment within which the oyster fishery operates and includes sensitive sediment, <i>Zostera</i> -, maërl- and <i>Serpula</i> -dominated communities.
Reefs [1170]	<i>Serpula vermicularis</i> dominated community complex; Intertidal reef community complex; Sheltered subtidal reef community; <i>Laminaria</i> dominated community complex.	To maintain	Potentially relevant where dredging overlaps or occurs adjacent to reef habitat and associated communities, through direct seabed contact or sediment redistribution.

2.1.1.1. Spatial relationship between the licensed dredging area and benthic communities

The spatial relationship between the licensed native oyster dredging area and the mapped benthic communities of the Mullet/Blacksod Bay Complex SAC was examined using the NPWS marine community dataset (NPWS, 2025). **Figure 2.1** shows the distribution of mapped benthic community types in Blacksod Bay in relation to the licensed dredging area. This spatial comparison identifies the communities that potentially occur within the area available to the fishery and therefore require consideration in the dredging impact assessment.

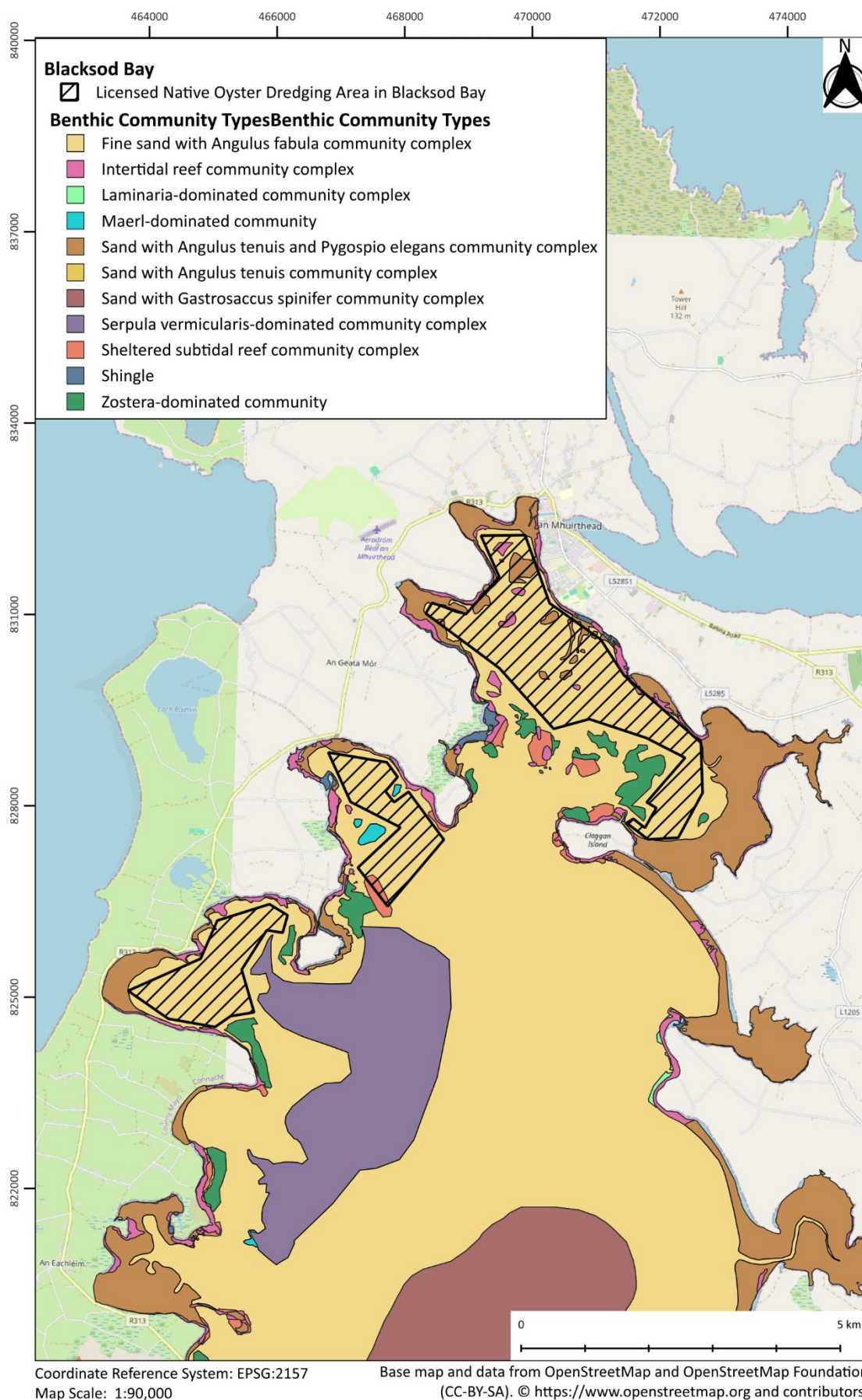


Figure 2.1: Licensed native oyster dredging area and distribution of benthic community types in Blacksod Bay.

Table 2-2 shows the area and percentage cover of mapped benthic community types within the licensed native oyster dredging area in Blacksod Bay. Areas were calculated from the spatial intersection of the licensed native oyster dredging area with mapped benthic community polygons. Percentage cover represents the proportion of the total licensed dredging area occupied by each mapped community type. The total licensed dredging area is approximately 9,499,923 m² (9.500 km²).

Table 2-2: Area and percentage of the licensed native oyster dredging area in Blacksod Bay occupied by each mapped benthic community type.

Benthic Community Type	Area (km ²)	Percentage covered (%)
Sheltered subtidal reef community complex	0.06	0.59
Intertidal reef community complex	0.11	1.13
Sand with <i>Angulus tenuis</i> and <i>Pygospio elegans</i> community complex	0.35	3.70
Fine sand with <i>Angulus fabula</i> community complex	8.99	94.58

The licensed native oyster dredging area in Blacksod Bay is predominantly associated with the Fine sand with *Angulus fabula* community complex, which accounts for approximately 94.6% of the licensed dredging polygon. The Sand with *Angulus tenuis* and *Pygospio elegans* community complex represents a further approximately 3.7%, while the Intertidal reef community complex accounts for approximately 1.1%. The Sheltered subtidal reef community complex represents approximately 0.6% of the licensed dredging area.

2.1.2. Tralee Bay

Tralee Bay forms part of the Tralee Bay and Magharees Peninsula, West to Cloghane SAC [002070], which supports a range of marine, coastal, freshwater and terrestrial conservation features. The Annex I habitat Qualifying Interests relevant to this assessment are Mudflats and sandflats not covered by seawater at low tide [1140] and Large shallow inlets and bays [1160]. Estuaries [1130] may also be relevant where fishing activity extends into the mapped estuarine habitat, while Reefs [1170] are relevant where the proposed dredge areas overlap mapped Intertidal and Subtidal reef community complexes. This assessment considered the effects of commercial native oyster dredging on *Ostrea edulis* and relevant benthic communities associated with these habitats. Potential effects on the remaining Qualifying Interests are outside the scope of this report and will be considered in the corresponding Screening for Appropriate Assessment.

The conservation objective for Mudflats and sandflats not covered by seawater at low tide [1140] is to maintain its favourable conservation condition. This requires the permanent habitat area of approximately 1,685 ha to remain stable or increase, subject to natural processes. The objectives also require the extent and quality of the *Zostera*, *Mytilus* and *Sabellaria* dominated communities to be maintained, and the sedimentary

communities, including the *Ostrea edulis* dominated community, to be conserved in natural condition (NPWS, 2026). This conservation feature is relevant where dredging occurs within intertidal or shallow subtidal areas, as bottom towed fishing gear may disturb sediments and affect the associated benthic communities.

Large shallow inlets and bays [1160] is the conservation feature of significant relevance because it encompasses large amounts of the marine environment within which the oyster fishery operates. Its conservation objective is to maintain its favourable conservation condition, including the permanent habitat area of approximately 10,130 ha and the extent, quality and natural condition of its constituent communities. These include *Zostera*, *Mytilus* and *Sabellaria* dominated communities, sedimentary benthic communities and intertidal, subtidal and *Laminaria* dominated reef communities.

The *Ostrea edulis* dominated community is specifically included among the communities that must be conserved in natural condition. It has an indicative mapped extent of approximately 650 ha within the Large shallow inlets and bays habitat and occurs in two key areas: within the inner bay between Fenit and Spa and in the outer bay off Castlegregory, at depths of approximately 0 to 8 m (NPWS, 2014). As native oyster is the target species of the fishery, the conservation objective for this community is directly relevant to the assessment of oyster removal, incidental mortality, disturbance of shell and cultch, and changes to the associated benthic assemblage.

The *Zostera*, *Mytilus* and *Sabellaria* dominated communities are identified by NPWS as keystone communities of particular ecological importance due to their physical complexity and the habitats they provide for other species. The location of oyster dredging in relation to these communities should therefore be established, particularly where dredging occurs in shallow water or close to the margins of mapped sensitive habitats.

The conservation objectives for Estuaries [1130] and Reefs [1170] are also to maintain their favourable conservation condition. The relevance of Estuaries will depend on whether the fishing footprint overlaps the mapped estuarine habitat or its associated sedimentary communities. Reef habitat is relevant where dredging may contact or occur adjacent to intertidal, subtidal, *Laminaria*, *Mytilus* or *Sabellaria* dominated reef communities. Direct contact could abrade reef surfaces, damage biogenic structures or dislodge attached organisms. Available reef and community mapping is partly based on spatial interpolation and may underestimate small-scale or steeply sloping reef features.

NPWS estimated the mapped extent of the sensitive benthic communities relevant to the licensed dredging areas. Within Large shallow inlets and bays [1160], the *Zostera* dominated community complex was estimated at approximately 350 ha, the *Mytilus* dominated community at 11 ha and the *Sabellaria* dominated community complex at 7 ha. Within Reefs [1170], the Intertidal reef community complex was estimated at approximately 221 ha, the Subtidal reef community complex at approximately 2,499 ha and the *Laminaria*-dominated reef

community complex at approximately 117 ha. NPWS noted that the mapped extent of reef communities is likely to underestimate their actual area because areas of sheer and steeply sloping rock are not fully represented (NPWS, 2014).

Table 2-3 below shows the conservation features, their site-specific objectives, and the potential interaction of oyster dredging on *O. edulis*.

On the basis of the source-pathway-receptor relationships identified above, Mudflats and sandflats [1140] and Large shallow inlets and bays [1160], particularly the *Ostrea edulis* dominated community, are the conservation features with the clearest potential pathways to effects from oyster dredging. The assessment considers the location, extent, intensity, and frequency of dredging in relation to the mapped oyster grounds and other sensitive benthic communities.

Other benthic communities relevant to native oyster dredging include the *Zostera* dominated community complex, *Mytilus* dominated community and *Sabellaria* dominated community complex. These are identified as keystone communities, with conservation targets requiring their extent and high quality to be maintained. The *Zostera* dominated community complex occurs intertidally from Derrymore Island to west of Blennerville, with smaller beds at Spa, Fermoy and Fahamore, and subtidally between Kilshannig Point, Castlegregory and Scraggane Point. The *Mytilus* dominated community occurs in Inner Tralee Bay between Derrymore Peninsula and Annagh Island, while the *Sabellaria alveolata* reef community is recorded on Derrymore Strand. The Mixed sediment with crustaceans, bivalves and polychaetes community complex and Sand with *Nephtys cirrosa* community complex are also particularly relevant because the *Ostrea edulis* dominated community occurs mainly within the former and extends into the latter in Inner Tralee Bay. The remaining sediment and reef communities are also required to be conserved in natural condition and may be affected where dredging causes direct seabed disturbance or the removal or displacement of characteristic fauna (NPWS, 2014d).

Table 2-3: Conservation features of the Tralee Bay and Magharees Peninsula, West to Cloghane SAC relevant to oyster dredging on *Ostrea edulis*.

Qualifying interest	Relevant benthic communities	Site-specific objective	Potential interaction with oyster dredging
Estuaries [1130]	<i>Zostera</i> dominated community complex; <i>Mytilus</i> dominated community; Sand to sandy mud with polychaetes and bivalves community complex; Mixed sediment with crustaceans, bivalves and polychaetes community complex; Intertidal reef community complex	To maintain	Potentially relevant where the fishing footprint or associated sediment redistribution interacts with the mapped estuarine habitat or its constituent benthic communities.
Mudflats and sandflats not covered by seawater at low tide [1140]	<i>Mytilus</i> dominated community; <i>Zostera</i> dominated community complex; <i>Sabellaria</i> dominated community complex; Sand to sandy mud with polychaetes and bivalves community complex; Sand with <i>Nephtys cirrosa</i> community complex; <i>Ostrea edulis</i> dominated community	To maintain	Potentially relevant where dredging or associated sediment redistribution interacts with intertidal areas, including the mapped <i>Ostrea edulis</i> dominated community.
Large shallow inlets and bays [1160]	<i>Mytilus</i> dominated community; <i>Zostera</i> dominated community complex; <i>Sabellaria</i> dominated community complex; Sand to sandy mud with polychaetes and bivalves community complex; Sand with <i>Nephtys cirrosa</i> community complex; Mixed sediment with crustaceans, bivalves and polychaetes community complex; <i>Ostrea edulis</i> dominated community; Intertidal reef community complex; Subtidal reef community complex; <i>Laminaria</i> dominated reef community complex	To maintain	Main marine receptor because it encompasses the oyster fishery and includes the <i>Ostrea edulis</i> dominated community and other sensitive benthic communities.
Reefs [1170]	<i>Mytilus</i> dominated community; <i>Sabellaria</i> dominated community complex; Intertidal reef community complex; Subtidal reef community complex; <i>Laminaria</i> dominated reef community complex	To maintain	Potentially relevant where dredging overlaps or occurs adjacent to rocky or biogenic reef and reef-associated communities.

2.1.2.1. Spatial relationship between the proposed dredging areas and benthic communities

The spatial relationship between the proposed dredge areas within Tralee Bay and the mapped benthic communities of Tralee Bay and Magharees Peninsula, West to Cloghane SAC was examined using the NPWS marine community dataset (NPWS, 2025). **Figure 2.2** shows the distribution of mapped benthic community types in Tralee Bay in relation to the two proposed dredge areas (Inner Tralee Bay and Outer Tralee Bay native oyster beds). The two areas were assessed separately as they represent distinct native oyster beds. This spatial comparison identifies the communities that potentially occur within the areas that the Tralee Co-op propose to dredge and therefore these areas are the focus of the dredging impact assessment for Tralee Bay.

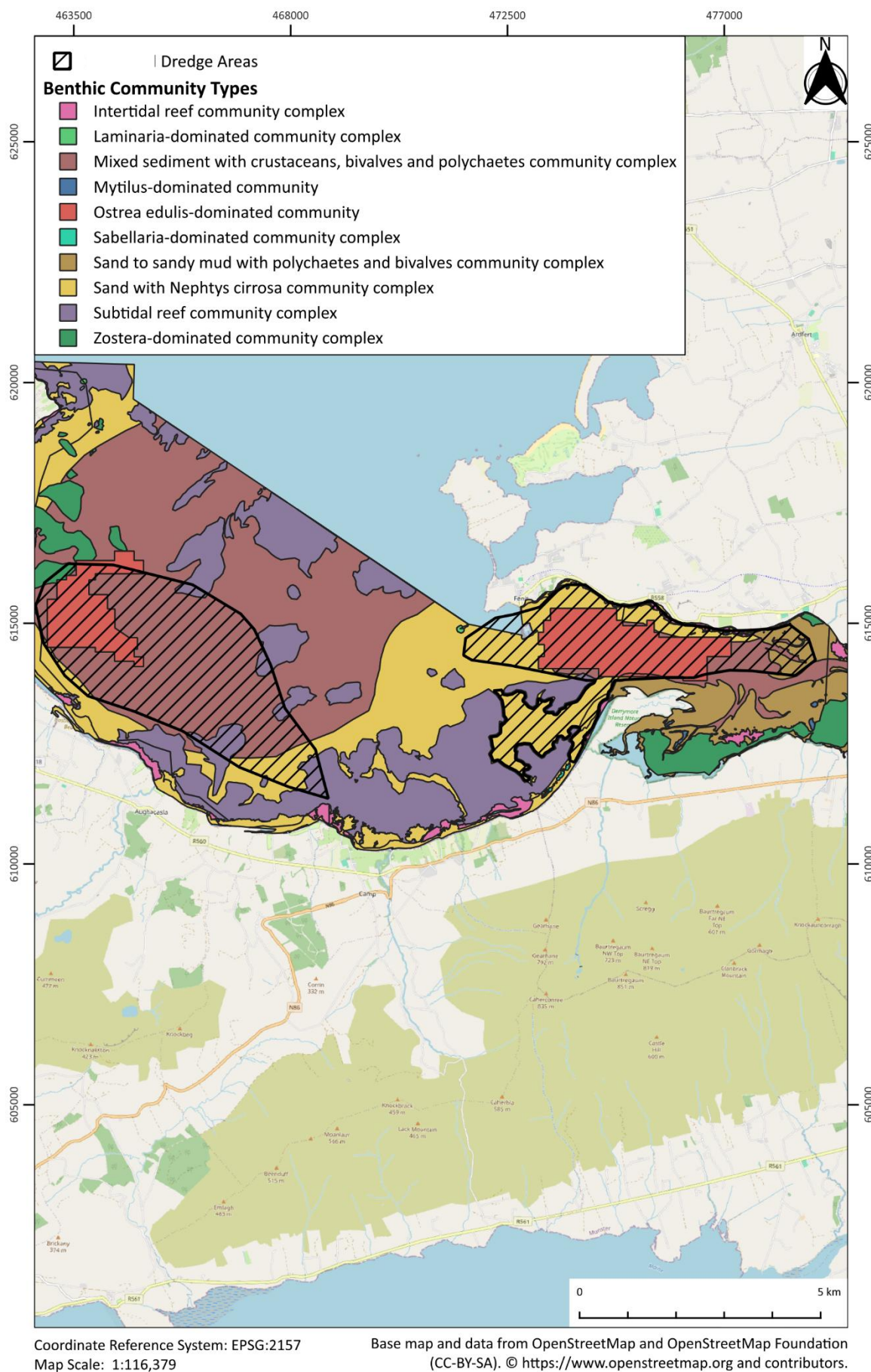


Figure 2.2: Proposed native oyster dredge areas and distribution of benthic community types in Tralee Bay.

Table 2-4 and **Table 2-5** show the area and percentage cover of mapped benthic community types within the proposed dredge areas in Tralee Bay. Areas were calculated from the spatial intersection of each proposed dredge area with mapped benthic community polygons (NPWS, 2025). Percentage cover represents the proportion of the respective proposed dredge areas occupied by each mapped community type. The total proposed dredge area in Outer Tralee Bay is 14,996,187 m² (14.996 km²) and 10,872,525 m² (10.873 km²) in Inner Tralee Bay.

Table 2-4: Area and percentage of the proposed dredge areas in Outer Tralee occupied by each mapped benthic community type.

Benthic Community Type	Area (km ²)	Percentage covered (%)
Sand with <i>Nephtys cirrosa</i> community complex	0.96	6.4
<i>Zostera</i> dominated community complex	0.11	0.7
<i>Ostrea edulis</i> dominated community	2.28	15.2
Mixed sediment with crustaceans, bivalves and polychaetes community complex	10.59	70.6
Subtidal reef community complex	1.05	7.0

The proposed dredge area in Outer Tralee Bay is predominantly associated with the Mixed sediment with crustaceans, bivalves and polychaetes community complex, which accounts for approximately 70.6% of the proposed dredging area. The *Ostrea edulis* dominated community represents approximately 15.2% of the proposed dredge area in Outer Tralee Bay, while the Subtidal reef community complex and Sand with *Nephtys cirrosa* community complex account for approximately 7.0% and 6.4% of that area, respectively. *Zostera* dominated community complex occupies a comparatively small proportion of the proposed dredge area (~ 0.7%).

Table 2-5: Area and percentage of the proposed dredging area in Inner Tralee occupied by each mapped benthic community type. 2.348% is unaccounted for as this area within the proposed dredge area is not within the SAC and is not mapped

Benthic Community Type	Area (km ²)	Percentage Covered (%)
Sand with <i>Nephtys cirrosa</i> community complex	4.79	44.10
<i>Ostrea edulis</i> dominated community	3.93	36.18
Mixed sediment with crustaceans, bivalves and polychaetes community complex	0.9998	9.20
Sand to sandy mud with polychaetes and bivalves community complex	0.73	6.68
Intertidal reef community complex	0.12	1.15
Subtidal reef community complex	0.04	0.34

Benthic Community Type	Area (km ²)	Percentage Covered (%)
<i>Mytilus</i> dominated community	0.0011	<0.1

The proposed dredge area in Inner Tralee Bay has a substantially greater proportional overlap with the *Ostrea edulis* dominated community, which accounts for approximately 36.18% of the proposed dredging area. The Sand with *Nephtys cirrosa* community complex represents approximately 44.10%, while the Mixed sediment with crustaceans, bivalves and polychaetes community complex and Sand to sandy mud with polychaetes and bivalves community complex account for approximately 9.2% and 6.68%, respectively. Smaller areas of Intertidal reef community complex (1.15%), Subtidal reef community complex (0.34%) and *Mytilus* dominated community (<0.1%) also occur within the proposed dredging area.

When expressed relative to the total mapped extent of the corresponding communities within the SAC, the proposed dredge areas overlap approximately 5.6% of the Intertidal reef community complex and approximately 4.4% of the Subtidal reef community complex. The Outer Tralee Bay proposed dredge area also overlaps approximately 3.2% of the *Zostera* dominated community complex mapped within Large shallow inlets and bays [1160], while the Inner Tralee Bay proposed dredge area overlaps approximately 0.9% of the *Mytilus* dominated community mapped within Reefs [1170]. No mapped overlap occurs with the *Sabellaria* dominated community complex or *Laminaria* dominated reef community complex. These values represent maximum mapped spatial overlap and do not indicate that the full overlapping area is dredged.

2.1.3. Lough Swilly

Lough Swilly is situated in the northern part of Co. Donegal, with the inner part of the lough designated as the Lough Swilly SAC [002287]. The SAC extends from below Letterkenny to north of Buncrana and supports seven conservation features. The Annex I habitat Qualifying Interests relevant to this assessment is Estuaries [1130], as this encompasses the intertidal and subtidal benthic communities within which the fishery operates. This assessment considered the effects of commercial native oyster dredging on *Ostrea edulis* and relevant benthic communities associated with these habitats. Potential effects on the remaining Qualifying Interests are outside the scope of this report and will be considered in the corresponding Screening for Appropriate Assessment.

The conservation objective for Estuaries [1130] is to maintain its favourable conservation condition. This requires the permanent habitat area of approximately 6,118 ha to remain stable or increase, subject to natural processes. The objective also requires the Fine sand community complex, Intertidal mixed sediment with polychaetes, Subtidal mixed sediment with polychaetes and bivalves, Muddy fine sand with *Thyasira flexuosa*,

Mud community complex and *Ostrea edulis* dominated community to be conserved in natural condition (NPWS, 2011a; NPWS, 2011c).

The *Ostrea edulis* dominated community is directly relevant because native oyster is the target species of the fishery. This community occurs both intertidally and subtidally and is concentrated in the southern part of the lough, extending from Ballygreen Point and Ballymoney Point southwards to Ardrumman and Ballylawn Point, with a smaller area recorded at Ballykenny Point (NPWS, 2011c). Oyster removal, incidental mortality and disturbance of shell, cultch and associated sediments may therefore be relevant to the objective of conserving this community in natural condition. The location, intensity and frequency of dredging should also be considered in relation to the other sediment communities through which the oyster beds extend.

On the basis of the source-pathway-receptor relationships identified above, Estuaries [1130], particularly the *Ostrea edulis* dominated and associated sediment communities, represents the SAC conservation feature with the clearest potential pathway to effects from oyster dredging.

Among the other constituent communities, the Intertidal mixed sediment with polychaetes and Subtidal mixed sediment with polychaetes and bivalves communities are particularly relevant because the *Ostrea edulis* dominated community occurs within both. The intertidal community extends along much of the western shore from Rathmullan to Ardrumman, around Inch Island and along sections of the eastern shore. The subtidal community occurs in the central and southern parts of the SAC, including Fahan Creek, the head of the lough and the subtidal slopes west of Inch Island. The Muddy fine sand with *Thyasira flexuosa* community extends from Ramelton to the southwestern margin of Inch Island, while the Mud community complex occurs within the inner estuarine shores of Fahan Creek, Ramelton Channel and the head of the lough. The Fine sand community complex is largely confined to the northern part of the SAC. Each community is subject to the conservation target requiring its natural condition to be maintained and may be affected where dredging causes direct seabed disturbance or the removal or displacement of characteristic polychaete and bivalve fauna (NPWS, 2011c).

Table 2-6: Conservation features of the Lough Swilly SAC relevant to oyster dredging on oyster beds.

Conservation feature	Relevant benthic communities / habitat associations	Site-specific objective	Potential interaction with oyster dredging
Estuaries [1130]	Fine sand community complex; Intertidal mixed sediment with polychaetes; Subtidal mixed sediment with polychaetes and bivalves; Muddy fine sand with <i>Thyasira flexuosa</i> ; Mud community complex; <i>Ostrea edulis</i> dominated community.	To maintain	Main SAC receptor because it encompasses the oyster fishery and includes the <i>Ostrea edulis</i> dominated and associated sediment communities.

2.1.3.1. Spatial relationship between the licensed dredging area and benthic communities

The spatial relationship between the licensed native oyster dredging area and the mapped benthic communities of Lough Swilly SAC was examined using the NPWS marine community dataset (NPWS, 2025). **Figure 2.3** shows the distribution of mapped benthic community types in Lough Swilly in relation to the licensed dredging area. This spatial comparison identifies the communities that potentially occur within the area available to the fishery and therefore require consideration in the dredging impact assessment.

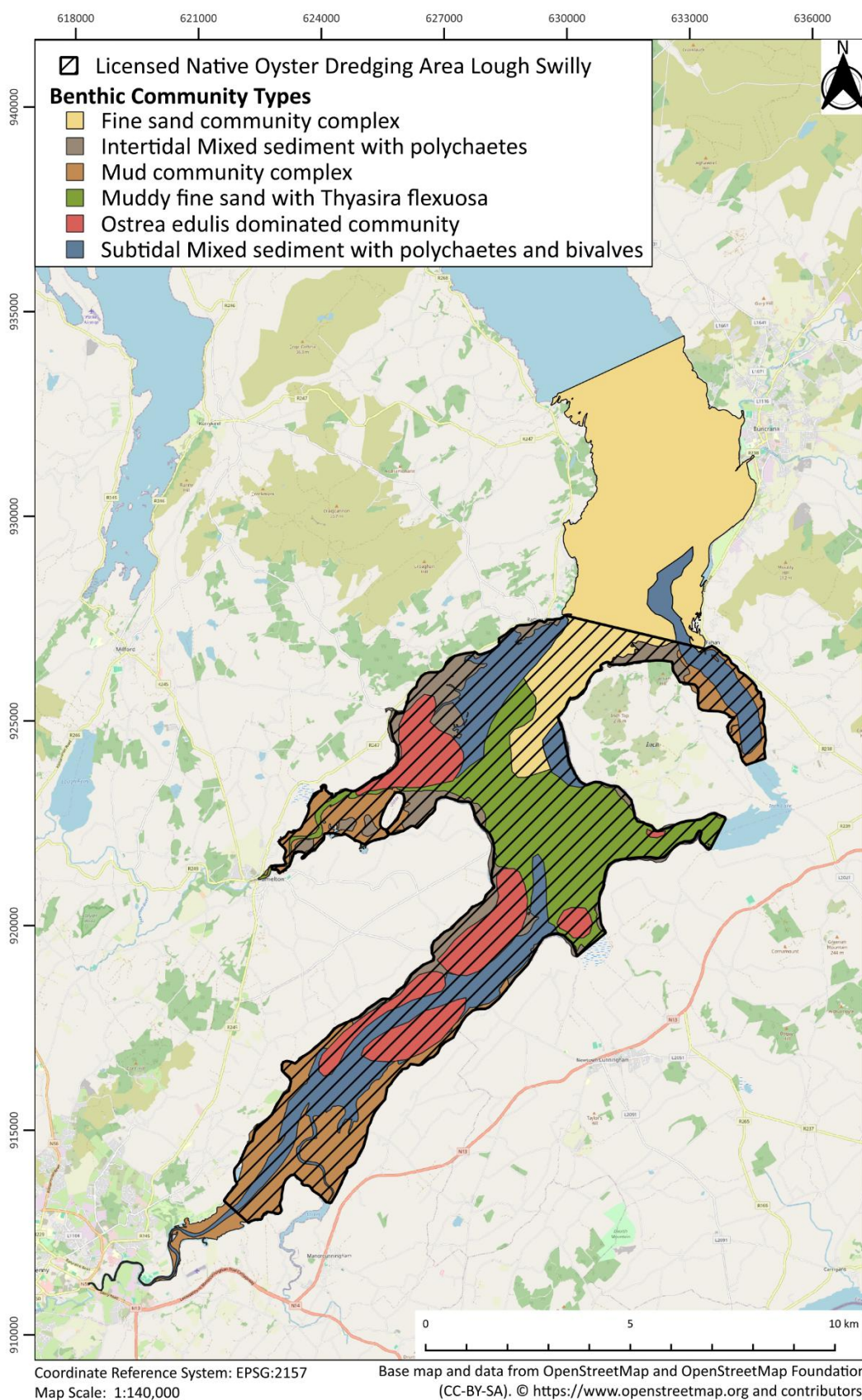


Figure 2.3: Licensed native oyster dredging area and distribution of benthic community types in Lough Swilly.

Table 2-7 shows the area and percentage cover of mapped benthic community types within the licensed native oyster dredging area in Lough Swilly. Areas were calculated from the spatial intersection of the licensed native oyster dredging area with mapped benthic community polygons. Percentage cover represents the proportion of the total licensed dredging area occupied by each mapped community type. The total licensed dredging area is approximately 55,412,665 m² (55.413 km²).

Table 2-7: Area and percentage of the licensed native oyster dredging area in Lough Swilly occupied by each mapped benthic community type.

Benthic Community Type	Area (km ²)	Percentage covered (%)
Intertidal Mixed sediment with polychaetes	5.65	10.2
<i>Ostrea edulis</i> dominated community	9.06	16.4
Mud community complex	9.960	18.0
Subtidal Mixed sediment with polychaetes and bivalves	12.64	22.8
Fine sand community complex	4.74	8.6
Muddy fine sand with <i>Thyasira flexuosa</i>	13.14	23.7

The licensed native oyster dredging area in Lough Swilly overlaps a range of sedimentary benthic communities. The largest proportion is occupied by the Muddy fine sand with *Thyasira flexuosa* community, which accounts for approximately 23.7% of the licensed dredging area, followed by the Subtidal Mixed sediment with polychaetes and bivalves community at approximately 22.8%. The Mud community complex represents approximately 18.0%, while the *Ostrea edulis* dominated community accounts for approximately 16.4% of the licensed dredging area. The Intertidal Mixed sediment with polychaetes and Fine sand community complexes account for approximately 10.2% and 8.6%, respectively.

The overlap with the *Ostrea edulis* dominated community is of particular relevance because native oyster is the target species of the fishery and this community is specifically identified within the site-specific conservation objectives for Estuaries [1130] as requiring conservation in natural condition. The licensed dredging area also overlaps extensively with the other sedimentary communities forming part of the Estuaries conservation feature. The spatial overlaps identified here provide the basis for the subsequent assessment of potential dredging effects in relation to the relevant conservation objectives and community-specific sensitivities.

2.2. Marine Institute Native Oyster Survey data

2.2.1. Historical context

Native oyster (*Ostrea edulis*) stocks were historically much more widespread and productive around the Irish coast than they are today. Oyster fishing in Ireland has been documented since at least the 1500s, and important oyster fisheries formerly occurred at approximately 50 locations around the coast. National production peaked during the mid- to late nineteenth century, driven particularly by the large offshore Irish Sea fishery and the Galway Bay fishery. Reported production from the main Arklow and Galway beds reached approximately 34–38 million oysters annually in 1863–1864, followed by a marked decline during subsequent decades (Tully & Clarke, 2012). By the early twentieth century, several formerly prolific public beds, including those in Cork, the Shannon, Clew Bay and Blacksod Bay, were already producing relatively small quantities.

The causes of the long-term decline have varied among locations and cannot be attributed to a single pressure. Historical overexploitation and poorly regulated fishing contributed to the depletion or loss of some stocks, while environmental variability, severe winter mortality, habitat loss, disease and, more recently, introduced species have also affected stock productivity and persistence. *Bonamia ostreae*, first detected in Ireland in the late 1980s, has subsequently become an important source of mortality in a number of oyster-producing areas. Tully and Clarke (2012) emphasised that these pressures act on populations in which spawning, larval settlement and recruitment can already be highly variable, thereby increasing the risk that mortality exceeds the capacity of depleted populations to replenish.

The present distribution of native oysters is therefore considerably reduced relative to this historical range. The largest remaining stocks occur in Inner Tralee Bay, Galway Bay, Cill Chiaráin Bay, Bertraghuoy Bay, Clew Bay, Blacksod Bay and Lough Swilly. Biomass is currently low relative to historical levels in most areas, with Inner Tralee Bay representing the main exception and supporting the majority of the national native oyster biomass and harvest tonnage (Marine Institute, 2025). This concentration of national biomass in Inner Tralee Bay was already evident during the Marine Institute surveys undertaken between 2010 and 2012, when more than 80% of the native oyster biomass recorded across the main surveyed stocks occurred in Inner Tralee Bay, despite the bed representing only a relatively small proportion of the total surveyed area (Tully & Clarke, 2012). Biomass estimates from those surveys were approximately 982–1,329 tonnes in Inner Tralee Bay, compared with approximately 124 tonnes in Lough Swilly, 99 tonnes in Outer Tralee Bay and 25 tonnes in Blacksod Bay.

The earlier surveys also demonstrated that commercial native oyster stocks are typically spatially heterogeneous. Oyster densities were generally below 0.5 oysters m⁻² across much of the surveyed grounds, with commercially important concentrations occurring in relatively discrete patches rather than uniformly

across the wider area in which oysters were present. Inner Tralee Bay differed substantially from the other surveyed stocks, supporting localised densities of up to approximately 50 oysters m⁻² (Tully & Clarke, 2012).

Native oyster populations are also characterised by episodic rather than consistently annual recruitment. The 2010–2012 surveys indicated relatively regular recruitment in Inner Tralee Bay and Lough Swilly, but less frequent recruitment in several other stocks, including Blacksod Bay. This is consistent with the wider ecology of *O. edulis*, for which successful replenishment depends on the interaction between sufficient spawning-stock density, favourable environmental conditions during spawning and larval development, and the availability of suitable settlement substrate. Young-of-the-year oysters are also poorly represented in dredge surveys, meaning that recruitment signals become clearer as cohorts grow into sizes that are more effectively retained and detected during subsequent surveys (Tully & Clarke, 2012).

Population density itself is important to reproductive potential. *O. edulis* fertilisation depends on sperm released by neighbouring oysters, and very low adult densities may reduce fertilisation success. Tully and Clarke (2012) identified low stock density as a potential constraint on recovery in depleted oyster populations, particularly where recruitment is already irregular. Maintaining sufficiently dense spawning aggregations is relevant both to fishery productivity and to the resilience of oyster populations.

The condition of the seabed is similarly important to oyster persistence and recovery. Native oyster populations in Irish estuaries occur in dynamic environments subject to variation in salinity, sedimentation, temperature and physical disturbance. Tully and Clarke (2012) describe oyster habitat in terms of a “shell budget”, whereby the development and maintenance of shell-rich habitat depends on shell accumulation exceeding shell loss. Where spawning potential is sufficiently high, recruitment occurs regularly and physical disturbance and mortality remain sufficiently low, dead shell can accumulate and increase seabed complexity and the availability of hard settlement surfaces for oyster larvae. Conversely, loss or fragmentation of shell material, sedimentation and reduced habitat complexity can constrain settlement and subsequent stock recovery.

Although *O. edulis* is capable of forming structurally complex biogenic reef habitat, well-developed topographic native oyster reefs have not been documented in Irish shallow-water oyster fisheries during the modern period. Tully and Clarke (2012) noted, however, that the main Irish oyster beds have been subjected to fishing and other pressures for centuries, making it difficult to determine their pre-exploitation structure. Historical offshore beds in the Irish Sea produced very large numbers of oysters and may have supported extensive, relatively continuous oyster cover, but their original physical structure and ecological function are poorly documented. Present-day oyster-bed condition should therefore not necessarily be regarded as representing an undisturbed ecological reference state.

Native oyster fisheries are currently managed primarily through a statutory minimum landing size of approximately 76–78 mm, which oysters generally attain at approximately four to five years of age, although sexual maturity typically occurs at smaller sizes. Management arrangements vary among fisheries. In many areas, authority has been devolved to local oyster co-operatives through Fishery Orders or aquaculture licences, and fisheries may additionally be controlled through seasonal openings, limits on dredge permits and local quotas or total allowable catches (Marine Institute, 2025).

Native oyster stocks continue to face several pressures in addition to fishery removals, including *Bonamia ostreae* infection, environmental conditions affecting habitat suitability and, in Lough Swilly for example, competition with naturalised Pacific oyster (*Magallana gigas*). Marine Institute surveys in 2011 found Pacific oyster to be widespread and abundant within areas historically occupied by native oyster, although Pacific oyster tended to dominate more intertidal areas while native oyster was relatively more common towards channel margins and shallow subtidal areas (Tully & Clarke, 2012). *M. gigas* has subsequently persisted as a major component of the Lough Swilly oyster assemblage and supports a commercial fishery (Marine Institute, 2025).

2.2.2. Data sources, survey methods and data limitations

Marine Institute (MI) oyster survey data were reviewed to characterise the current condition of the native oyster stocks in Tralee Bay, Lough Swilly and Blacksod Bay. The analysis focused on three complementary lines of evidence relevant to the subsequent dredging impact assessment: stock biomass, oyster size structure and the recent spatial distribution of biomass within the oyster beds. Inner and Outer Tralee Bay were treated as separate stock units because they support spatially distinct oyster beds and are presented separately in the annual Shellfish Stock Review reported by the MI (Marine Institute, 2025).

For Lough Swilly, equivalent information for Pacific oyster (*Magallana gigas*) was also examined because this naturalised species occurs extensively within former and existing native oyster habitat and represents an important additional pressure on *Ostrea edulis* in Lough Swilly.

The analysis used oyster survey datasets supplied by the MI, supplemented by information reported in the annual Shellfish Stocks and Fisheries Review series and the earlier national assessment of native oyster stocks by Tully and Clarke (2012). MI oyster surveys are undertaken using locally appropriate oyster dredges. Current stock reviews apply a dredge-efficiency coefficient of 35% to raise survey catches and estimate stock biomass, with biomass estimated using a geostatistical framework that accounts for spatial autocorrelation in the survey

data (Marine Institute, 2025). The raised biomass estimates and associated 95% highest density intervals (HDIs) supplied by the MI were used for this assessment.

Annual biomass data for *O. edulis* were available for Inner Tralee Bay for 2018–2025, Outer Tralee Bay for 2020–2026. Annual biomass data for *O. edulis* and *M. gigas* were available in Lough Swilly for 2021–2026, although not every stock was surveyed in every year. Biomass data for *O. edulis* was only available for 2011 in Blacksod Bay. Raw oyster shell-length measurements were available for the corresponding Tralee and Lough Swilly surveys and for Blacksod Bay in 2011.

For each native oyster stock, shell-length measurements were summarised in 5-mm size classes and expressed as the percentage of measured oysters within each annual survey. Median and interquartile shell lengths were also calculated. Oysters <55 mm were used as a descriptive indicator of the smaller/juvenile component of the surveyed stock, while oysters ≥76 mm represented the component at or above the statutory Minimum Landing Size (MLS) for *O. edulis*. These thresholds are used as stock-structure indicators and should not be interpreted as direct estimates of annual recruitment or spawning-stock biomass.

Some limitations apply to the available survey data. Survey coverage in Inner Tralee Bay and Lough Swilly generally encompasses almost all of the known commercial oyster stock. Outer Tralee Bay is more spatially complex, with a patchier oyster distribution and areas of overlap or close association with seagrass. Consequently, the area surveyed has varied appreciably between years and more recent years of the survey encompass the full extent of the Outer Tralee oyster bed. Biomass per surveyed square kilometre was therefore considered alongside total biomass for Outer Tralee Bay.

The spatial survey outputs were designed to characterise biomass within the known oyster grounds rather than precisely identify the outer boundary of the oyster bed in each year. As a result, annual spatial layers cannot be used to infer small changes in bed extent, expansion, contraction or movement through time. The most recent available spatial biomass surface for each stock is instead used in this assessment to describe the contemporary distribution of biomass and its spatial relationship with the dredging license area and neighbouring benthic habitats.

Changes in biomass or size structure cannot in isolation be attributed to dredging. Native oyster populations are influenced by recruitment variability, natural mortality, food availability, temperature, salinity, disease, invasive and non-native species and fishery removals. The stock evidence presented below is therefore used to describe stock condition and biological context for the separate assessment of dredging impacts.

The MI survey data was interpreted using the following indicators (Table 2-8).

Table 2-8 Summary of Marine Institute oyster stock indicators for Blacksod Bay, Inner and Outer Tralee Bay and Lough Swilly, including raised biomass estimates, biomass per surveyed area and native oyster size-structure indicators.

Indicator	Use in this assessment	Interpretation
Raised biomass estimate	Describes the relative abundance and recent trajectory of each surveyed stock	Provides evidence of lower or higher stock biomass through the available survey series
Biomass per surveyed area	Provides additional context where the area surveyed varies between years	Particularly relevant to Outer Tralee Bay, where total survey coverage has changed
Shell-length distribution	Describes the representation of small, intermediate and large oysters	Used as a descriptive indicator of recruitment, cohort structure and retention of larger oysters
Oysters <55 mm	Descriptive indicator of the smaller/juvenile component	A high proportion indicates substantial representation of recently recruited/small oysters
Oysters ≥76 mm	Describes the proportion of measured oysters at or above the MLS	Indicates representation of the larger, harvestable component of the stock
Latest spatial biomass surface	Describes the contemporary distribution of biomass within the surveyed oyster grounds	Used to identify where biomass is concentrated and its relationship with dredging areas and sensitive habitats

2.2.3. Inner Tralee Bay

The MI survey data identifies Inner Tralee Bay as the largest of the stocks assessed in terms of native oyster biomass. Recent surveys show a reduction in biomass following 2023, but the size distributions continue to contain both small oysters indicative of recruitment and a larger component at or above the MLS. These characteristics provide important context for assessing the effect of fishery removals and repeated dredging on stock condition and replenishment.

2.2.3.1. Annual *O. edulis* Biomass over time

Inner Tralee Bay supported substantially greater native oyster biomass than the other stocks examined. Within the supplied 2018–2025 series, raised biomass estimates ranged from approximately 410 tonnes to 1,619

tonnes. Considering the most recent sequence, biomass increased from 617 tonnes in 2021 to 801 tonnes in 2022 and 891 tonnes in 2023, before declining to 503 tonnes in 2024 and 409.8 tonnes in 2025. The 2025 estimate was therefore approximately 54% lower than the 2023 estimate and was the lowest estimate within the supplied 2018–2025 dataset.

Mean biomass per surveyed area showed the same recent pattern, declining from 198.4 tonnes km⁻² in 2023 to 101.4 tonnes km⁻² in 2024 and 85.9 tonnes km⁻² in 2025. The lower recent total biomass therefore reflects a lower estimated biomass within the surveyed stock area rather than being explained by a substantial reduction in survey coverage.

Table 2-9 Annual raised biomass trends for Inner Tralee Bay 2010-2025 (Marine Institute, 2025).

Year	Month of survey	Survey area (km ²)	Biomass (tonnes)	Biomass (tonnes km ⁻²)
2010	September	4.26	982	230.54
2011	September	3.57	631	87.03
2012	February	3.80	655	85.02
2013	September	3.76	506	66.33
2014	September	3.80	1,265	164.16
2015	September	4.51	409	44.78
2016	September	3.66	901	121.44
2017	September	4.28	843	197.08
2018	September	3.92	1,161	296.17
2019	October	3.70	879	237.57
2020	September	5.32	1,618	304.14
2021	September	4.05	617	152.35
2022	September	4.55	801	176.04
2023	September	4.49	891	198.44
2024	September	4.96	503	101.41
2025	September	4.76	409	85.90

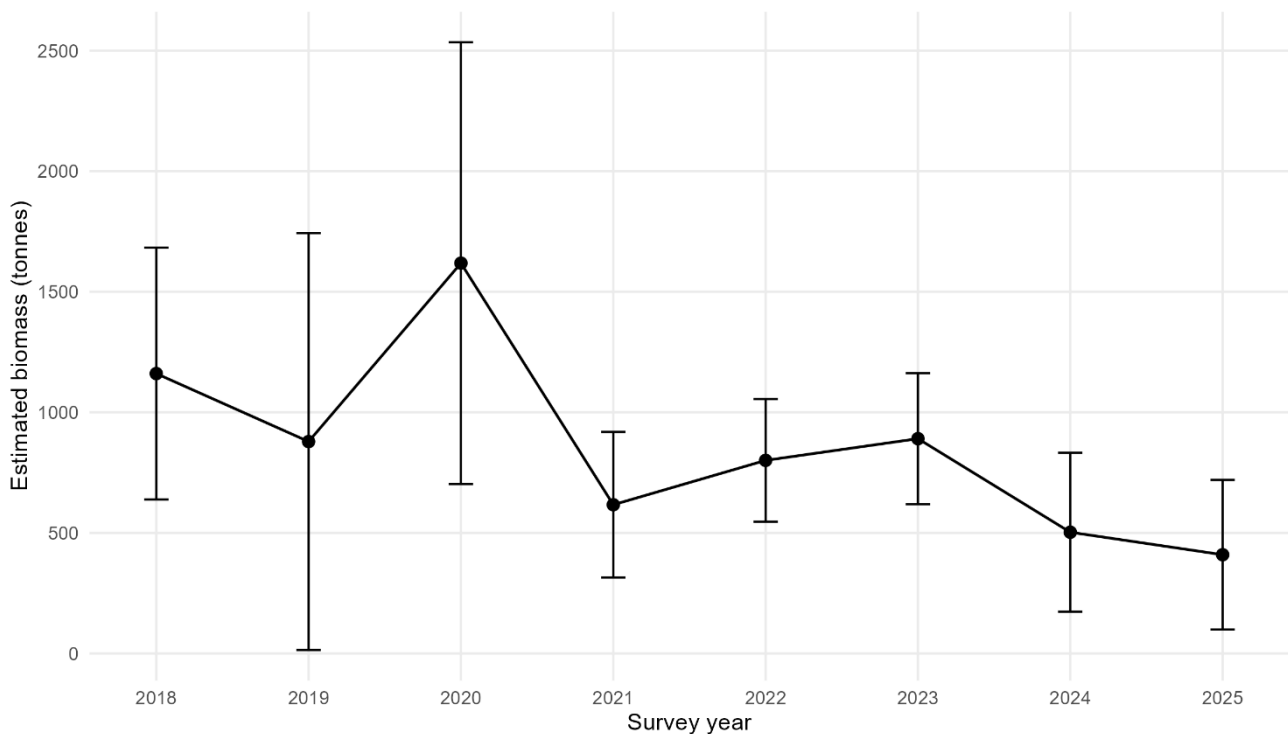


Figure 2.4 Marine Institute raised native oyster (*Ostrea edulis*) biomass estimates for Inner Tralee Bay. Error bars show 95% highest density intervals (HDIs).

2.2.3.2. Size distribution of *O. edulis* over time

The Inner Tralee Bay size distribution data demonstrate substantial interannual variation in the relative contribution of small and large oysters. Between 2018 and 2022, oysters < 55 mm generally represented approximately 39–51% of measured oysters, while 9–17% were ≥76 mm. The stock shifted towards larger size classes in 2023, when the median shell length increased to 69 mm, only 15.4% of measured oysters were <55 mm, and 26.1% were ≥76 mm.

Smaller oysters became more prominent again during 2024 and 2025. In 2025, median shell length was 64 mm, 31.1% of measured oysters were <55 mm and 17.0% were ≥76 mm. The recent size structure therefore indicates continued representation of small oysters, consistent with ongoing recruitment, while a component of larger oysters has also been retained within the stock. The increase in the small-oyster component following the larger size structure observed in 2023 is consistent with recurrent recruitment rather than a stock composed predominantly of a single ageing cohort.

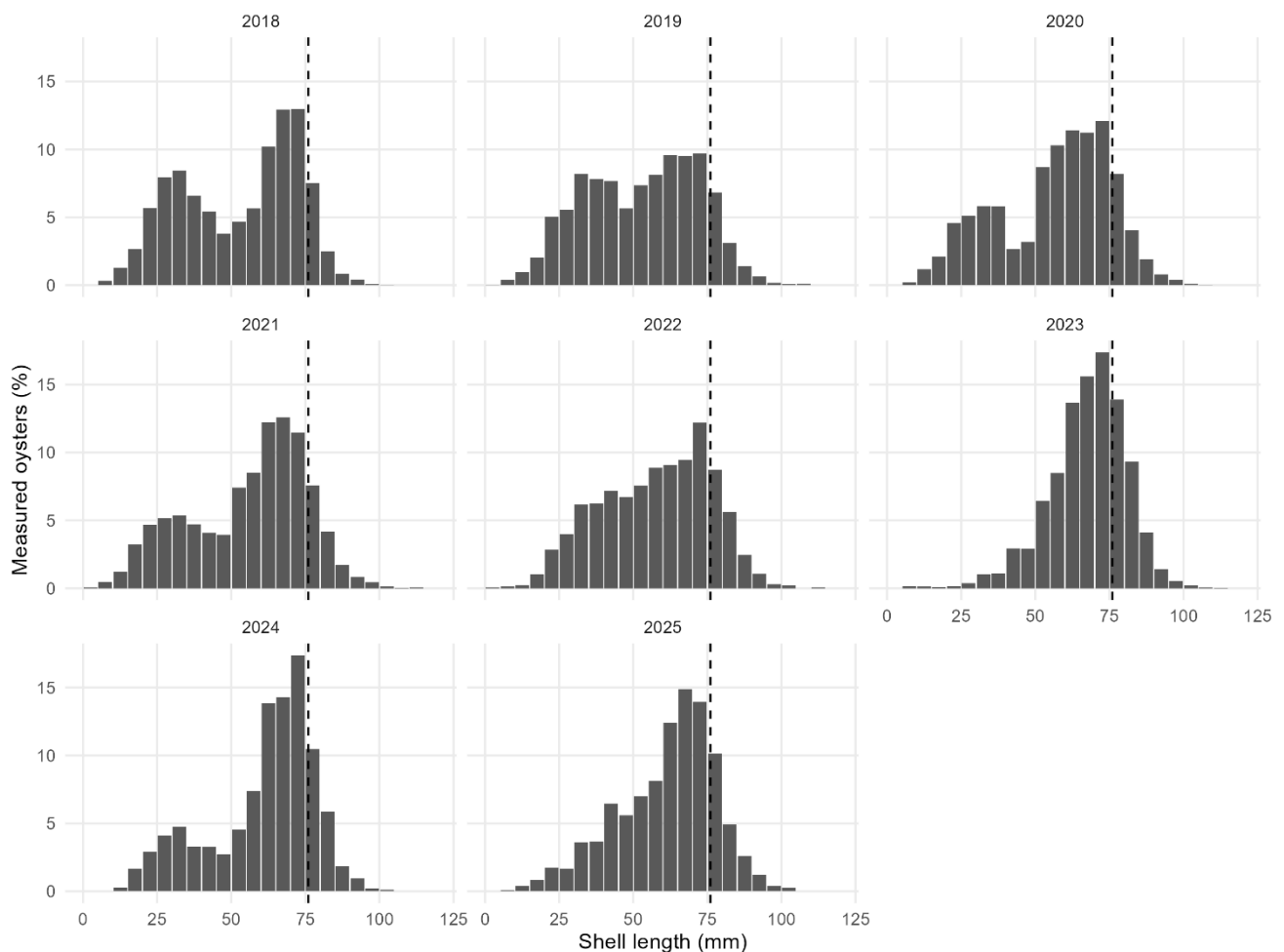


Figure 2.5 Annual shell-length distributions of native oyster (*Ostrea edulis*) measured during Marine Institute surveys of Inner Tralee Bay. The dashed line indicates the 76-mm minimum landing size.

2.2.3.1. Spatial distribution of *O. edulis* in Inner Bay

The latest available Marine Institute spatial biomass data show that native oyster (*Ostrea edulis*) biomass is unevenly distributed within the Inner Tralee Bay oyster grounds (**Figure 2.6**). The estimated *O. edulis* biomass ranges from approximately 0 to 0.07 kg/m².

The highest biomass was concentrated in the central to eastern part of the surveyed ground, where values approached 0.07 kg/m². A further area of relatively high biomass occurred towards the south-central part of the ground. Lower biomass was recorded mainly in the north-central area and towards the south-eastern margin. Overall, biomass was unevenly distributed, with localised areas of higher biomass within the wider oyster ground.

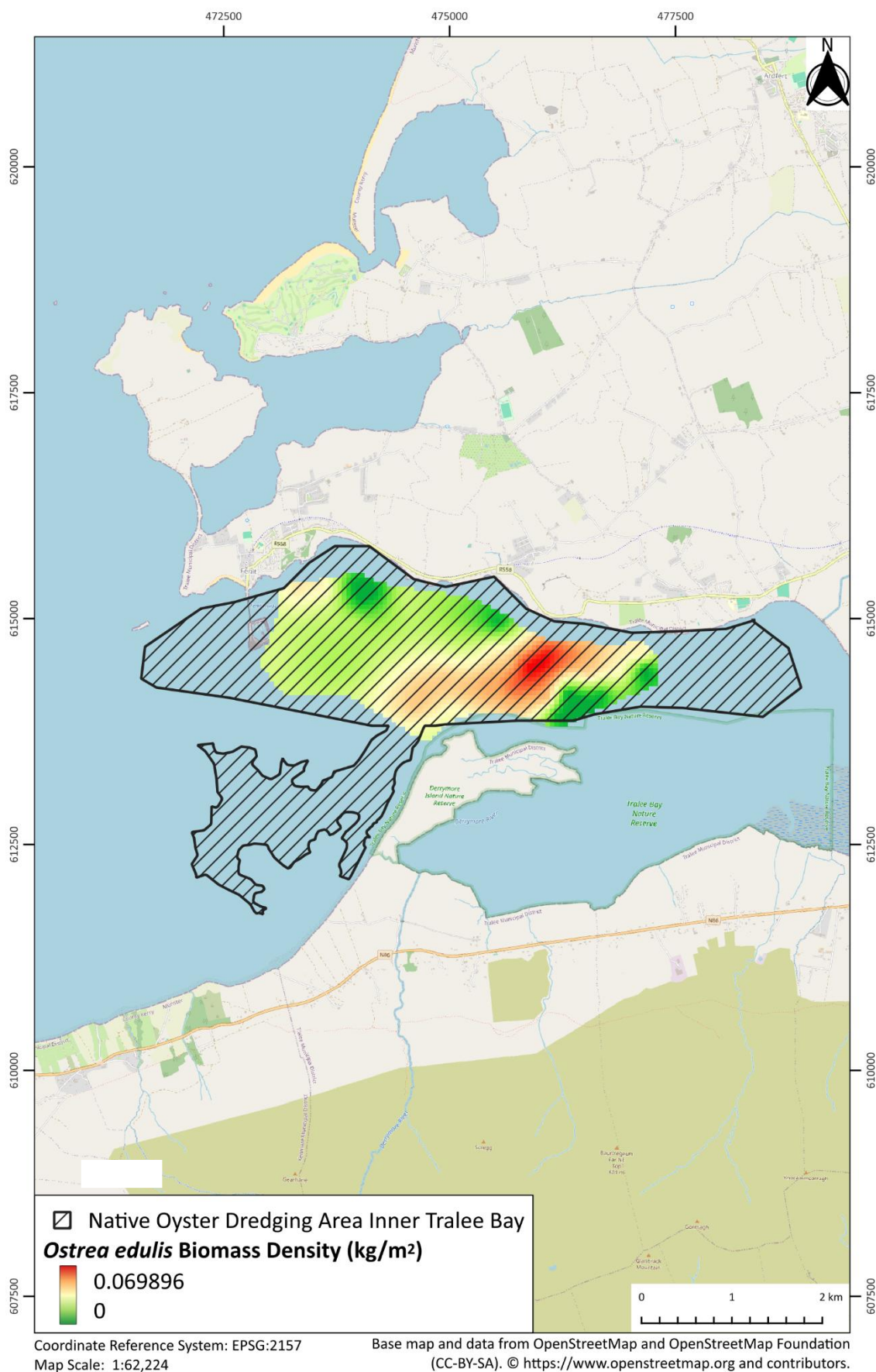


Figure 2.6: Latest available (2025) biomass density spatial distribution data for native oyster (*Ostrea edulis*) within the surveyed Inner Tralee Bay oyster grounds (provided by the Marine Institute).

2.2.4. Outer Tralee Bay

The most recent Outer Tralee surveys show an increase in biomass per surveyed area during 2026 together with a marked dominance of small oysters in the size distribution. This provides evidence of recent stock replenishment, while the comparatively small proportion of oysters ≥ 76 mm indicates that much of the current stock has not yet progressed into the larger harvestable size classes.

2.2.4.1. Annual *O. edulis* Biomass over time

Total raised biomass in Outer Tralee Bay was estimated at 150.9 tonnes in 2020, 86.0 tonnes in 2021 and 83.7 tonnes in 2023. The estimated total decreased to 48.4 tonnes in 2025 before increasing to 107.1 tonnes in 2026.

Interpretation of total biomass alongside the surveyed area provides additional information on this trajectory. Survey coverage was approximately 8.0–9.1 km² during 2020–2023 but 4.7 km² in 2025 and 5.56 km² in 2026. Mean estimated biomass per surveyed area was 16.8 tonnes km⁻² in 2020, 10.8 tonnes km⁻² in 2021, 9.2 tonnes km⁻² in 2023 and 10.3 tonnes km⁻² in 2025. It increased to 19.3 tonnes km⁻² in 2026, the highest value in the time series. The 2026 survey therefore indicates an increase in oyster biomass within the area surveyed relative to the preceding surveys, with total estimated biomass more than doubling between 2025 and 2026.

Table 2-10 Annual raised biomass trends for Outer Tralee Bay 2020-2025 (Marine Institute, 2025).

Year	Month of survey	Survey area (km ²)	Biomass (tonnes)	Biomass (tonnes km ⁻²)
2020	September	9.0	151.0	16.78
2021	September	8.0	86.0	10.75
2022	–	–	–	–
2023	January	9.1	83.7	9.20
2024	–	–	–	–
2025	February	4.7	48.44	10.30

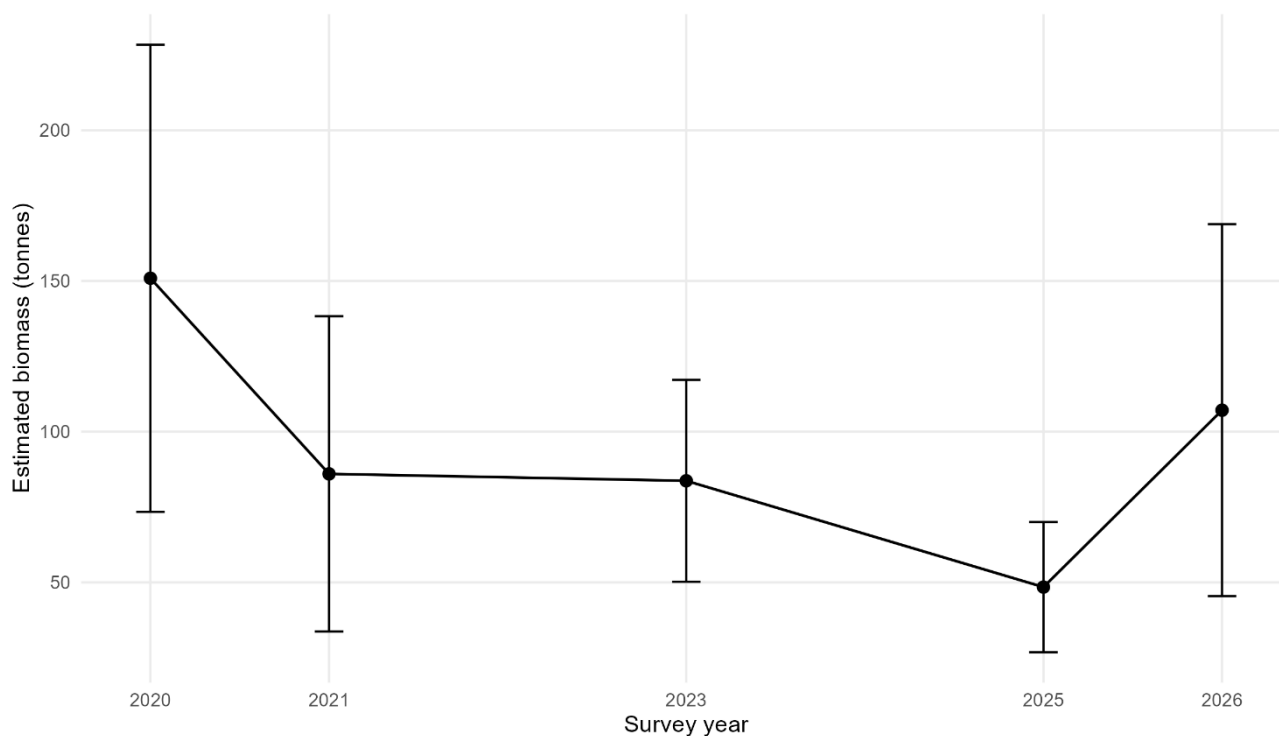


Figure 2.7 Raised native oyster (*Ostrea edulis*) biomass estimates for Outer Tralee Bay, 2020–2026. Error bars show 95% highest density intervals (HDIs).

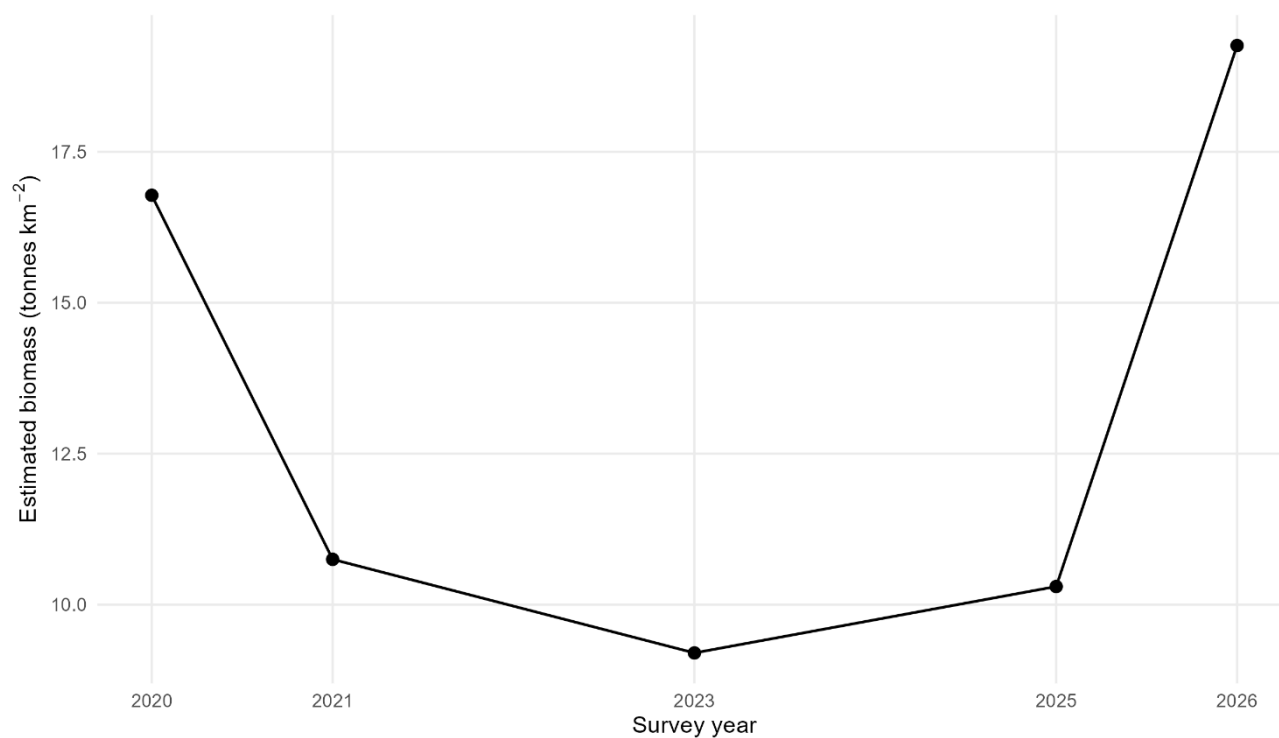


Figure 2.8 Mean estimated native oyster (*Ostrea edulis*) biomass per surveyed square kilometre in Outer Tralee Bay, 2020–2026.

2.2.4.1. Size distribution of *O. edulis* over time

A pronounced shift towards smaller oysters occurred in the two most recent Outer Tralee surveys. Between 2020 and 2023, median shell length was approximately 64–65 mm, 34–40% of measured oysters were <55 mm and approximately 29–32% were ≥76 mm.

In 2025, the median shell length decreased to 35.5 mm and 61.2% of measured oysters were <55 mm. This pattern became still more pronounced in 2026, when the median shell length was 32 mm, 65.9% of oysters were <55 mm and only 11.6% were ≥76 mm. The 2026 distribution contained particularly strong representation of very small oysters, including a prominent mode below approximately 15 mm.

The 2025 and 2026 surveys therefore provide a strong recent recruitment signal, with the stock currently containing a high proportion of small oysters. At the same time, the proportion of oysters at or above the MLS has decreased relative to the 2020–2023 surveys. Survival and growth of these smaller size classes will consequently be important to future replenishment of the larger oyster component.

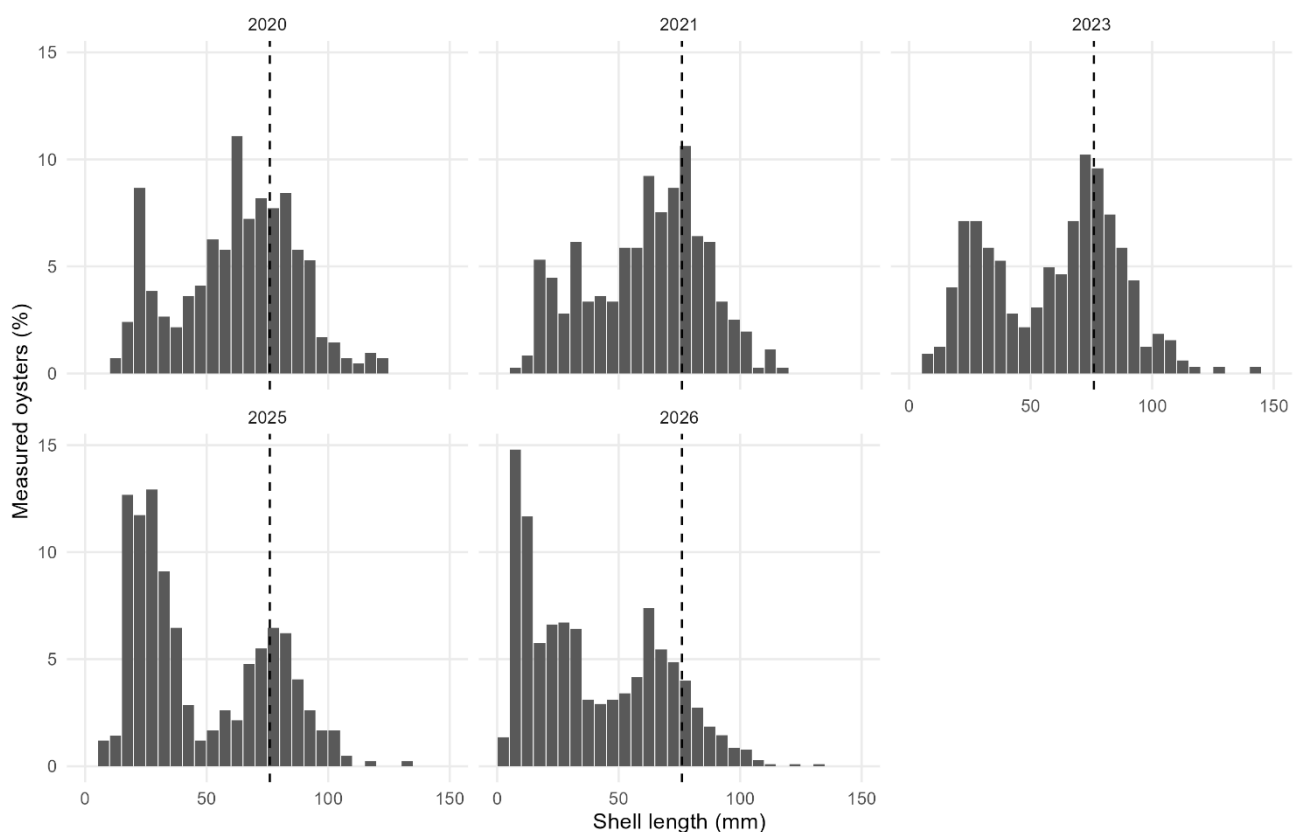


Figure 2.9 Annual shell-length distributions of native oyster (*Ostrea edulis*) measured during Marine Institute surveys of Outer Tralee Bay. The dashed line indicates the 76-mm minimum landing size.

2.2.4.2. Spatial distribution of *O. edulis* in Outer Bay

The latest available Marine Institute spatial biomass data show that native oyster (*Ostrea edulis*) biomass is unevenly distributed within the Outer Tralee Bay oyster grounds (**Figure 2.10**). The estimated *O. edulis* biomass ranges from approximately 0 to 0.016 kg/m². The highest biomass was concentrated in the western and south-eastern parts of the surveyed ground, where values approached 0.016 kg/m². Lower biomass was recorded mainly in the north-central part of the oyster ground and towards the eastern margin. Overall, biomass was unevenly distributed, with localised areas of higher biomass within the wider oyster ground.

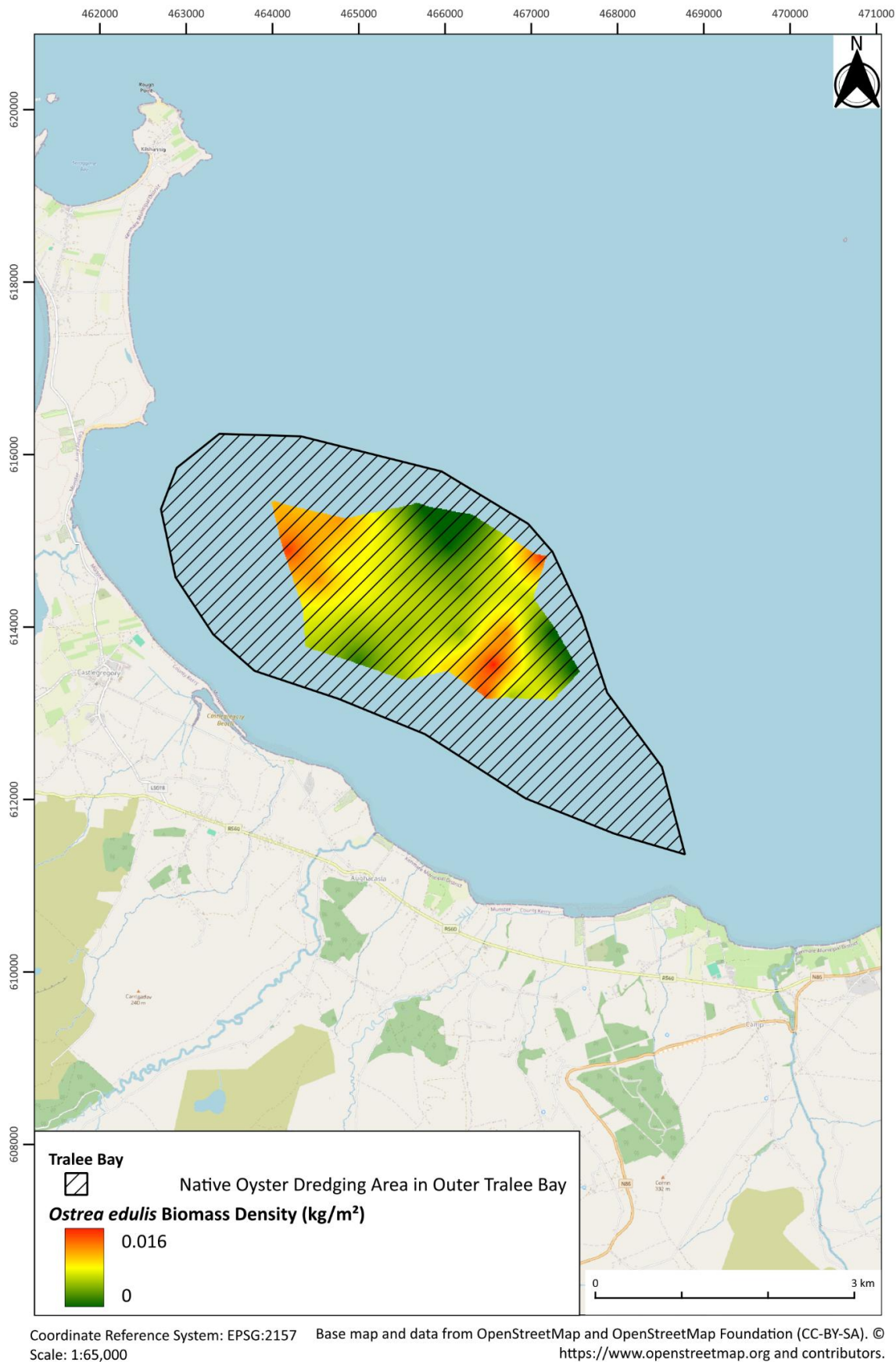


Figure 2.10: Latest available (2026) biomass density spatial distribution data for native oyster (*Ostrea edulis*) within the surveyed Outer Tralee Bay oyster grounds (provided by the Marine Institute).

2.2.5. Lough Swilly

The Lough Swilly survey data shows contrasting recent trajectories for native oyster (*O. edulis*) and Pacific oyster (*M. gigas*). Native oyster biomass increased between 2025 and 2026, and the most recent size distribution contained a greater representation of intermediate and larger oysters than the preceding survey while retaining evidence of smaller oysters within the population. Pacific oyster biomass, by contrast, has decreased markedly from its 2022 peak but remained greater than native oyster biomass in 2026.

2.2.5.1. Annual *Ostrea edulis* biomass over time

Raised native oyster biomass in Lough Swilly varied substantially over the available 2021–2026 survey series. Biomass was estimated at 110.5 ± 47.4 tonnes in 2021 and increased to 259.1 ± 158.6 tonnes in 2022, the highest estimate in the available series. Biomass subsequently decreased to 111.0 ± 47.0 tonnes in 2024 and 67.1 ± 23.8 tonnes in 2025, before increasing to 131.1 ± 46.1 tonnes in 2026.

The 2026 estimate represented an increase of approximately 95% relative to 2025 and was broadly comparable with the estimates recorded in 2021 and 2024, although it remained approximately 49% below the higher biomass recorded in 2022. Biomass per surveyed area followed the same overall pattern, increasing from 13.6 tonnes km^{-2} in 2021 to 31.7 tonnes km^{-2} in 2022, decreasing to 13.1 tonnes km^{-2} in 2024 and 8.8 tonnes km^{-2} in 2025, and increasing to 18.2 tonnes km^{-2} in 2026. The most recent survey therefore indicates an increase in native oyster biomass following the lower estimate recorded in 2025.

Table 2-11 Annual raised biomass trends for *O. edulis* in Lough Swilly 2011-2025 (Marine Institute, 2025).

Year	Month of survey	Survey area (km^2)	Biomass (tonnes)	Biomass (tonnes km^{-2})
2011	March	1.56	40.0	25.64
2011	November	13.07	124.0	9.52
2012	October	11.48	177.0	15.46
2013	October	5.96	84.0	14.14
2014	October	13.19	209.0	15.85
2015	August	5.19	33.0	6.50
2016	August	5.58	97.0	17.40
2017	September	7.19	316.0	43.99
2018	April	7.81	207.0	26.48

Year	Month of survey	Survey area (km ²)	Biomass (tonnes)	Biomass (tonnes km ⁻²)
2020	July	10.00	318.0	31.78
2021	November–December	8.10	110.5	13.64
2022	November–December	8.20	259.1	31.60
2024	April	8.46	111.0	13.12
2025	April	7.60	67.1	8.83

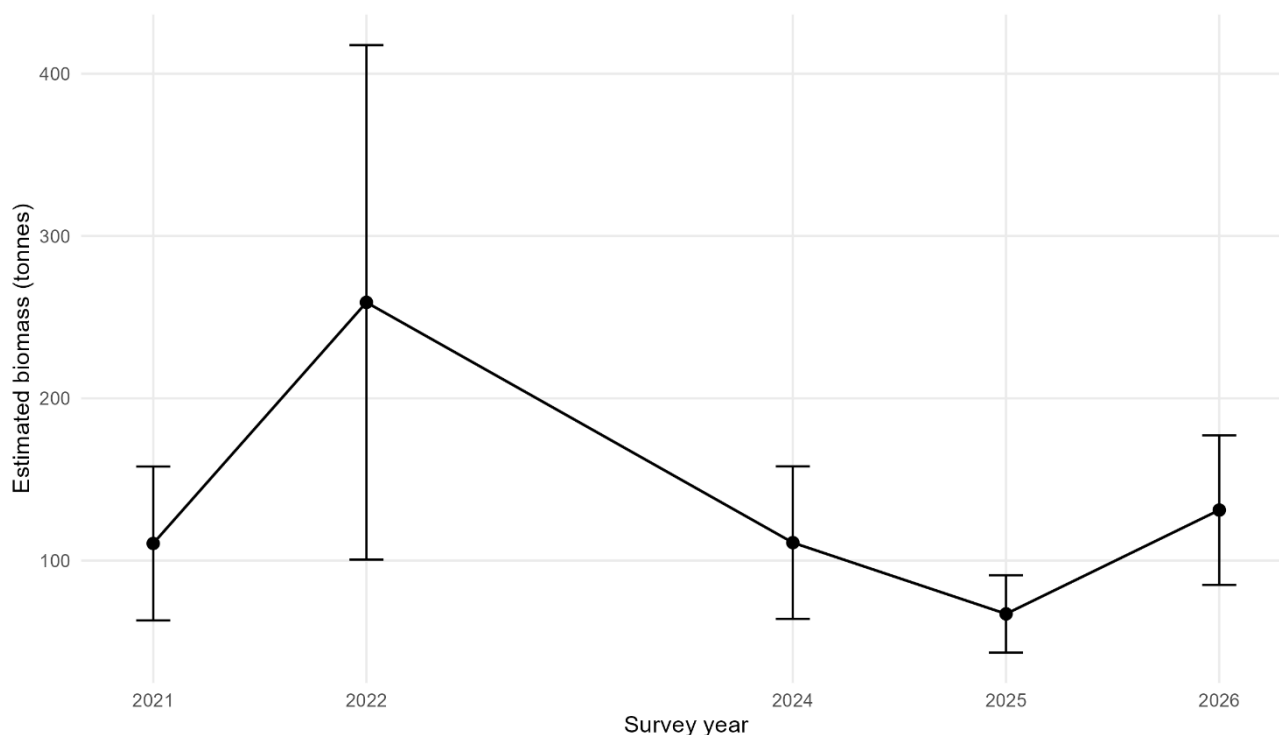


Figure 2.11 Raised native oyster (*Ostrea edulis*) biomass estimates for Lough Swilly, 2021–2026. Error bars show 95% highest density intervals (HDIs).

2.2.5.2. Annual *Magallana gigas* biomass over time

Pacific oyster biomass was considerably higher than native oyster biomass throughout the corresponding Lough Swilly survey series. Raised biomass was estimated at 745.5 ± 265.3 tonnes in 2021 and increased markedly to $3,275.9 \pm 787.3$ tonnes in 2022. Biomass subsequently decreased to $1,538.9 \pm 369.9$ tonnes in 2024, 605.0 ± 280.3 tonnes in 2025 and 346.3 ± 194.3 tonnes in 2026.

The 2026 estimate was approximately 89% lower than the peak recorded in 2022 and approximately 54% lower than the 2021 estimate. Biomass per surveyed area similarly decreased from 400.5 tonnes km⁻² in 2022 to 181.9 tonnes km⁻² in 2024, 79.6 tonnes km⁻² in 2025 and 48.1 tonnes km⁻² in 2026.

Despite this substantial reduction, estimated Pacific oyster biomass remained approximately 2.6 times greater than native oyster biomass in 2026. *M. gigas* therefore remained a quantitatively important component of the oyster assemblage in Lough Swilly in the most recent survey.

Table 2-12 Annual raised biomass trends for *M. gigas* in Lough Swilly 2011-2025 (Marine Institute, 2025).

Year	Month of survey	Survey area (km ²)	Number of <i>M. gigas</i> (millions; no DE)	Biomass (tonnes)	Biomass (tonnes km ⁻²)
2011	March	1.56	1.10	–	–
2011	November	13.07	5.60	–	–
2012	October	11.48	1.40	–	–
2013	October	5.96	0.50	–	–
2014	October	13.19	3.30	–	–
2015	August	5.19	1.30	–	–
2016	August	5.58	1.15	–	–
2017	September	7.19	–	–	–
2018	April	7.81	–	1,180.0	151.1
2020	July	10.00	–	1,718.3	171.8
2021	December	8.10	–	745.5	92.0
2022	December	8.18	–	3,275.9	400.5
2024	April	8.46	–	1,538.9	181.9
2025	April	7.60	–	605.0	79.6

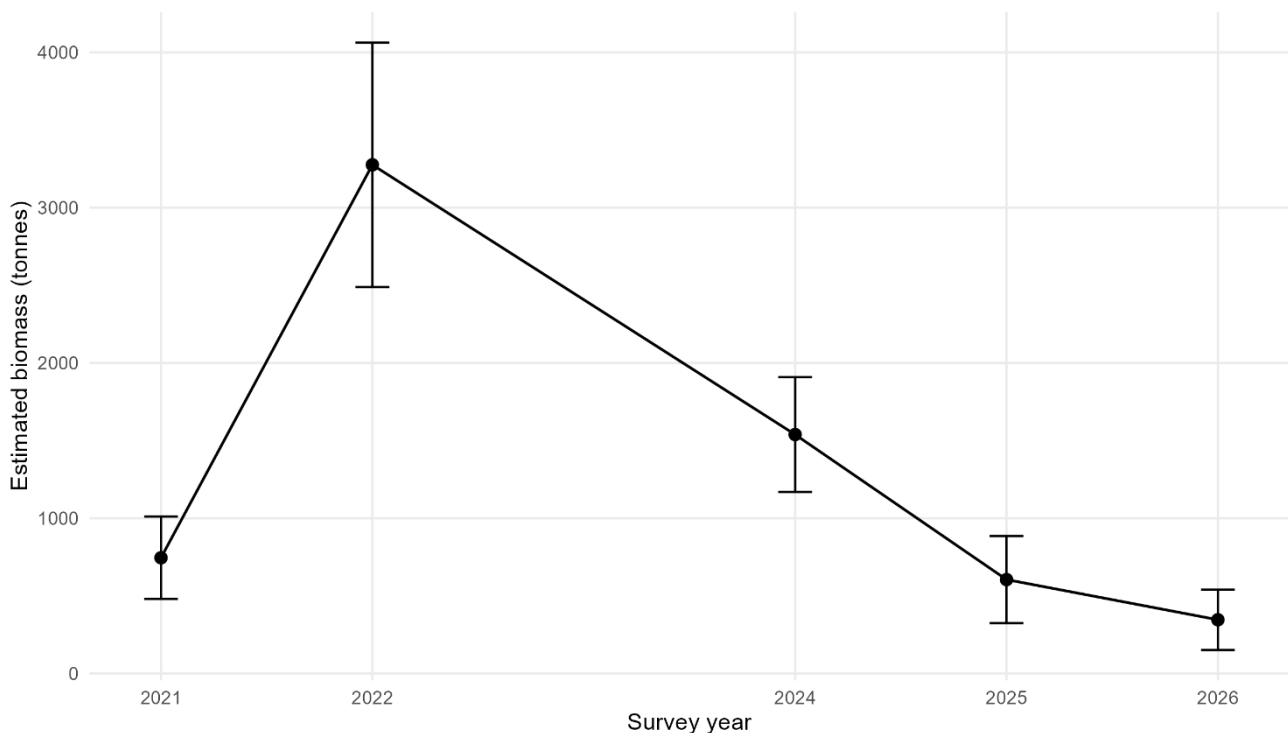


Figure 2.12 Raised Pacific oyster (*Magallana gigas*) biomass estimates for Lough Swilly, 2021–2026. Error bars show 95% highest density intervals (HDIs).

2.2.5.3. Size distribution of *Ostrea edulis* over time

The size structure of the Lough Swilly native oyster population varied considerably among surveys and provides evidence of repeated representation of smaller oysters within the stock. In 2021, the median shell length was 55.0 mm, with 50.0% of measured oysters <55 mm and 5.1% ≥76 mm. The contribution of smaller oysters increased further in 2022, when the median shell length was 49.0 mm and 63.5% of oysters were <55 mm, while only 3.9% were ≥76 mm.

The population shifted towards larger size classes in 2024, when median shell length increased to 59.4 mm and the proportion <55 mm decreased to 32.6%. Smaller oysters again became more prominent in 2025, when 48.2% were <55 mm. In the latest survey in 2026, median shell length increased to 62.5 mm, the proportion <55 mm decreased to 25.3%, and the proportion ≥76 mm increased to 10.3%, the highest proportion of oysters at or above the MLS recorded in the available 2021–2026 series.

The repeated occurrence of substantial numbers of smaller oysters indicates recurrent recruitment to the native oyster population during the survey period. The 2026 distribution was shifted towards intermediate and larger size classes relative to 2025, consistent with progression of oysters through the population size structure, while smaller oysters remained represented within the stock.

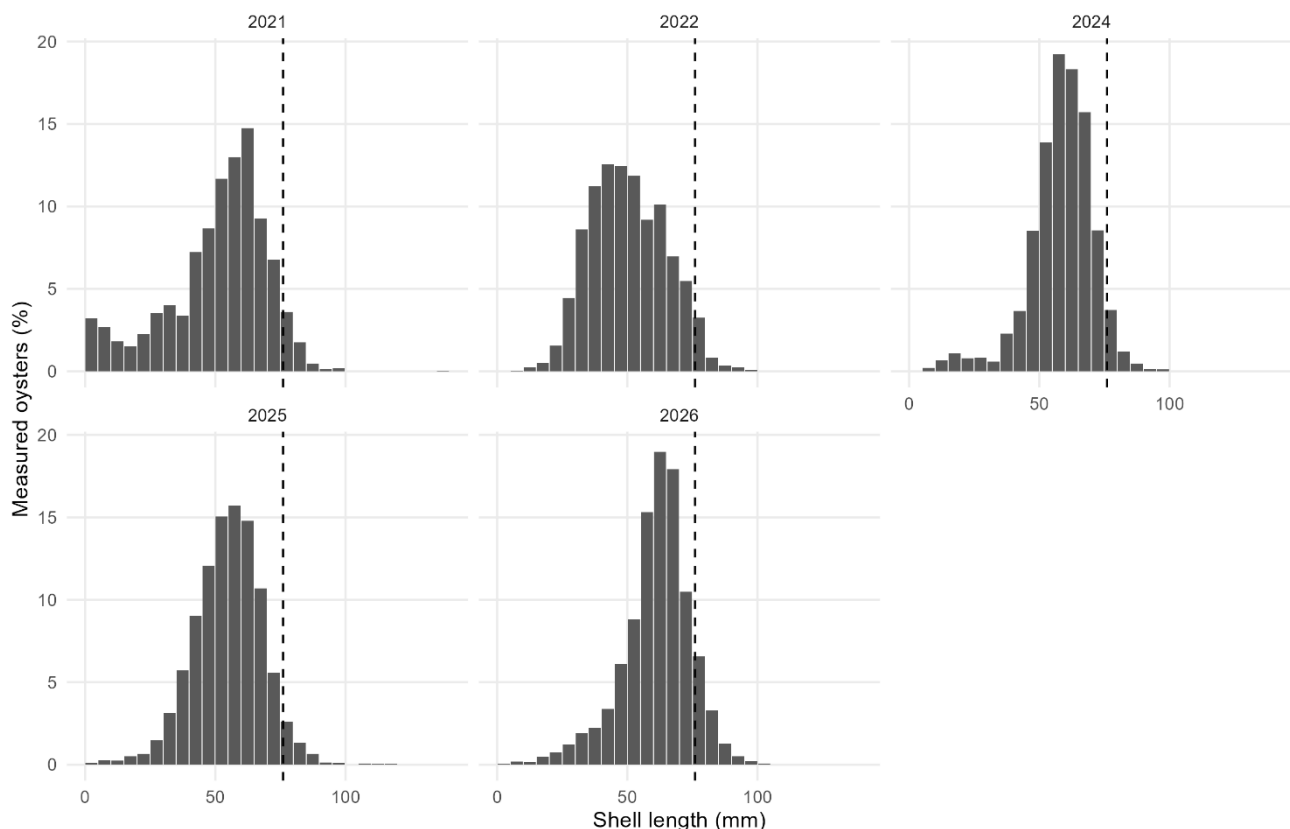


Figure 2.13 Size distribution of native oyster (*Ostrea edulis*) recorded during Marine Institute surveys of Lough Swilly, 2021–2026. The vertical dashed line indicates the statutory MLS of 76 mm.

2.2.5.4. Size distribution of *Magallana gigas* over time

Pacific oyster size structure showed a progressive shift towards larger oysters across the available survey series. Median shell length was 69.0 mm in both 2021 and 2022, increasing to 79.2 mm in 2024, 83.6 mm in 2025 and 87.7 mm in 2026. The interquartile range similarly shifted towards larger shell lengths, from 52–84 mm in 2021 to approximately 74–102 mm in 2026.

The 2021 distribution contained a pronounced component of very small Pacific oysters, including oysters <10 mm, while subsequent surveys were increasingly dominated by intermediate and larger size classes. The progressive increase in median shell length between 2022 and 2026 therefore indicates a shift in the measured population towards larger individuals over the recent survey period. This occurred concurrently with the substantial reduction in estimated total Pacific oyster biomass described above.

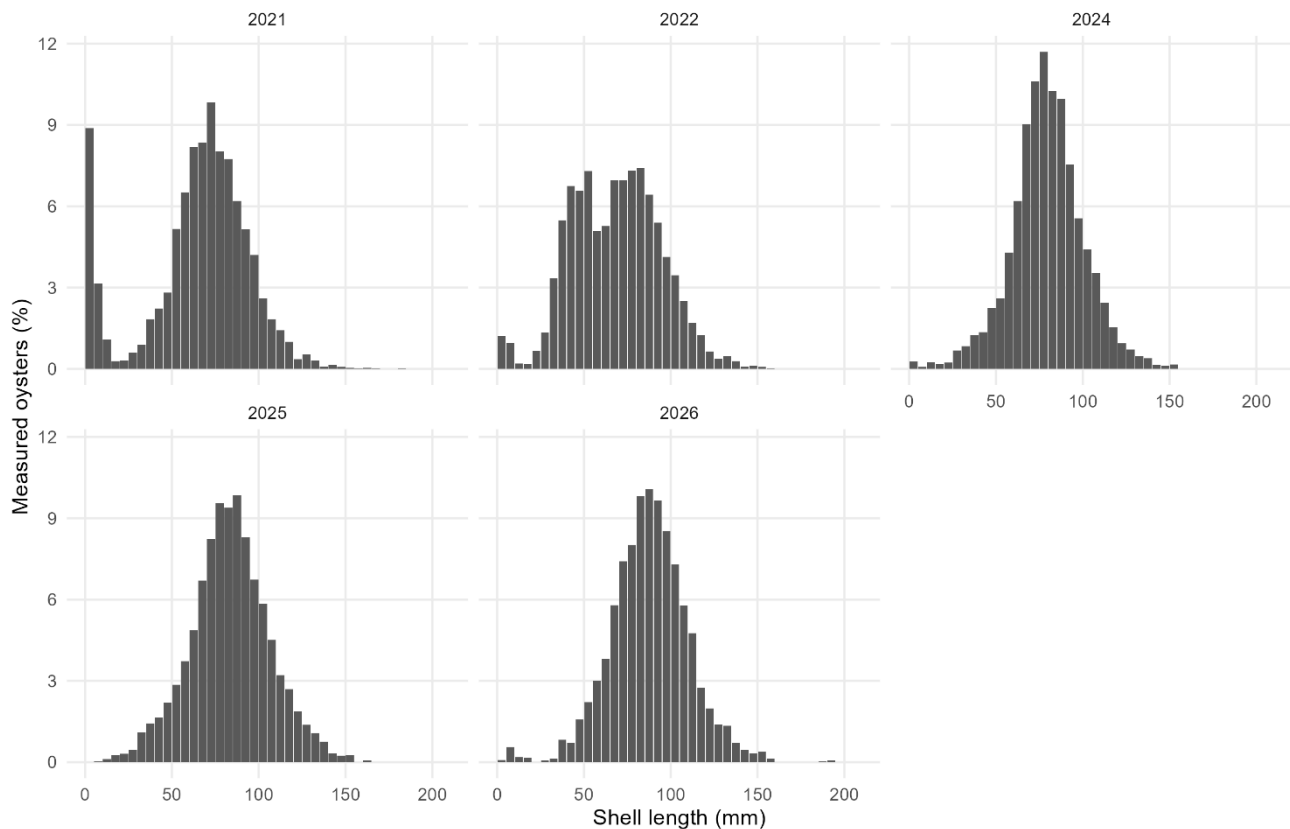


Figure 2.14 Size distribution of Pacific oyster (*Magallana gigas*) recorded during Marine Institute surveys of Lough Swilly, 2021–2026.

2.2.5.5. Spatial distribution of *Ostrea edulis* over time

The latest available Marine Institute spatial biomass data show that native oyster (*Ostrea edulis*) biomass is unevenly distributed within the Lough Swilly oyster grounds (Figure 2.15). The estimated *O. edulis* biomass density ranges from approximately 0.0001 to 0.0692 kg/m². The most recent survey was undertaken in 2026.

The highest biomass was concentrated in a small area in the north-eastern part of the surveyed grounds, near Fahan, where values approached 0.0692 kg/m². Areas of relatively higher biomass were also present along the eastern side of the lough, south of Inch, and within a smaller area in the central part of the surveyed grounds. Most of the remaining mapped oyster areas supported lower biomass, particularly across the western and southern parts of the lough. Overall, biomass was patchily distributed, with localised areas of higher biomass occurring within the wider licensed native oyster dredging area.

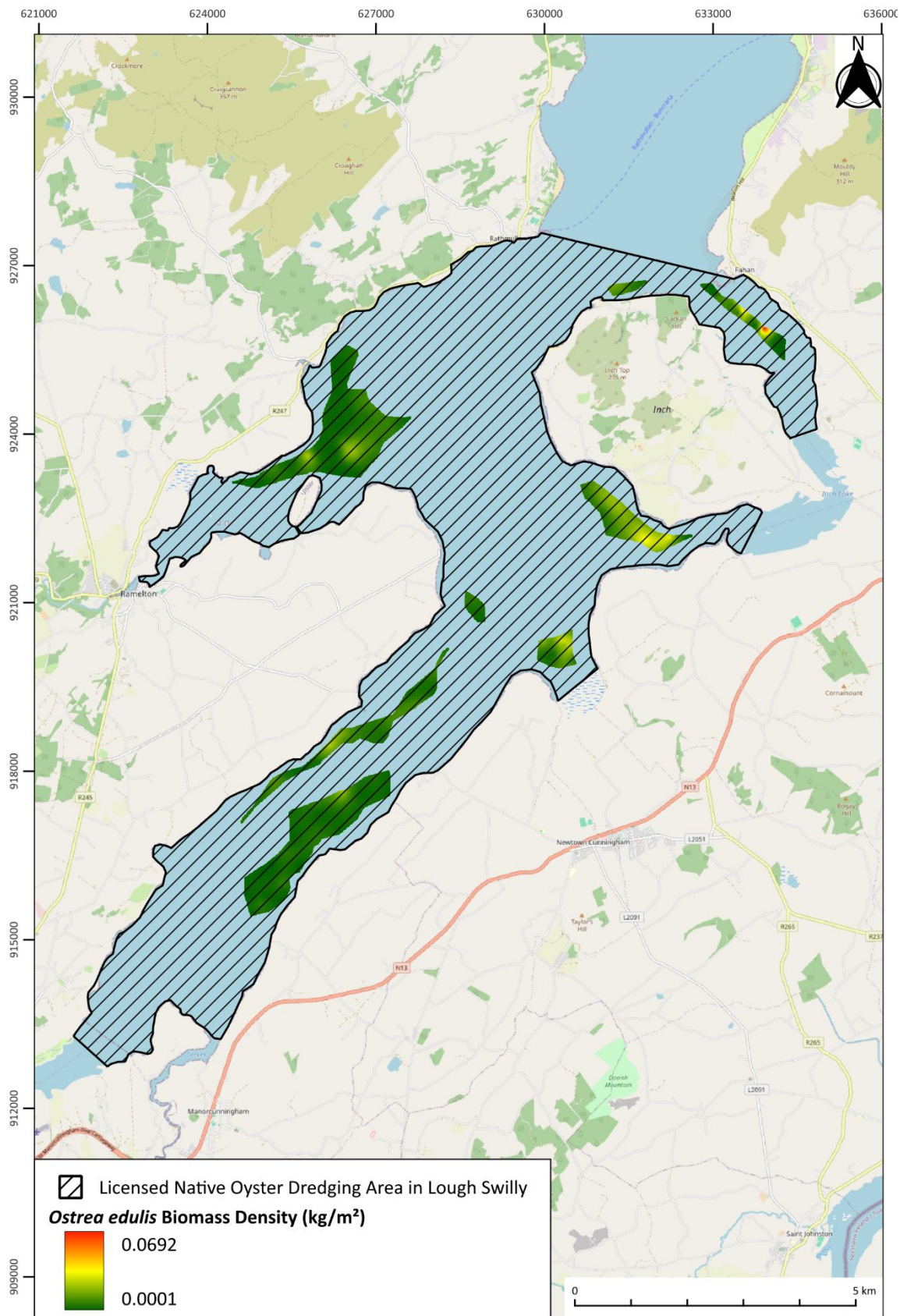


Figure 2.15: Latest available (2026) native oyster (*Ostrea edulis*) biomass density data within the surveyed Lough Swilly oyster grounds (provided by the Marine Institute).

2.2.5.6. Spatial distribution of *Magallana gigas* over time

The latest available Marine Institute spatial biomass data show that Pacific oyster (*Magallana gigas*) biomass is unevenly distributed within the Lough Swilly oyster grounds (**Figure 2.16**). The estimated *M. gigas* biomass density ranges from approximately 0.0003 to 0.0537 kg/m

The highest biomass was concentrated in the western part of the surveyed grounds, east of Ramelton, where values approached 0.0537 kg/m². A further area of relatively high biomass occurred in the southern part of the lough, with smaller areas of moderate biomass present around Inch and towards Fahan. Lower biomass was recorded across several of the remaining mapped areas.

The distribution of *M. gigas* overlaps with *O. edulis* in several parts of the licensed dredging area, including areas around Fahan, Inch, the western part of the lough and the southern oyster grounds. However, the areas of highest biomass differ between the two species. The highest *O. edulis* biomass was recorded towards Fahan in the north-east, whereas the highest *M. gigas* biomass occurred further west, east of Ramelton. Overall, both species show a patchy distribution within the licensed dredging area, with areas of spatial overlap as well as differences in the location of their main biomass concentrations.

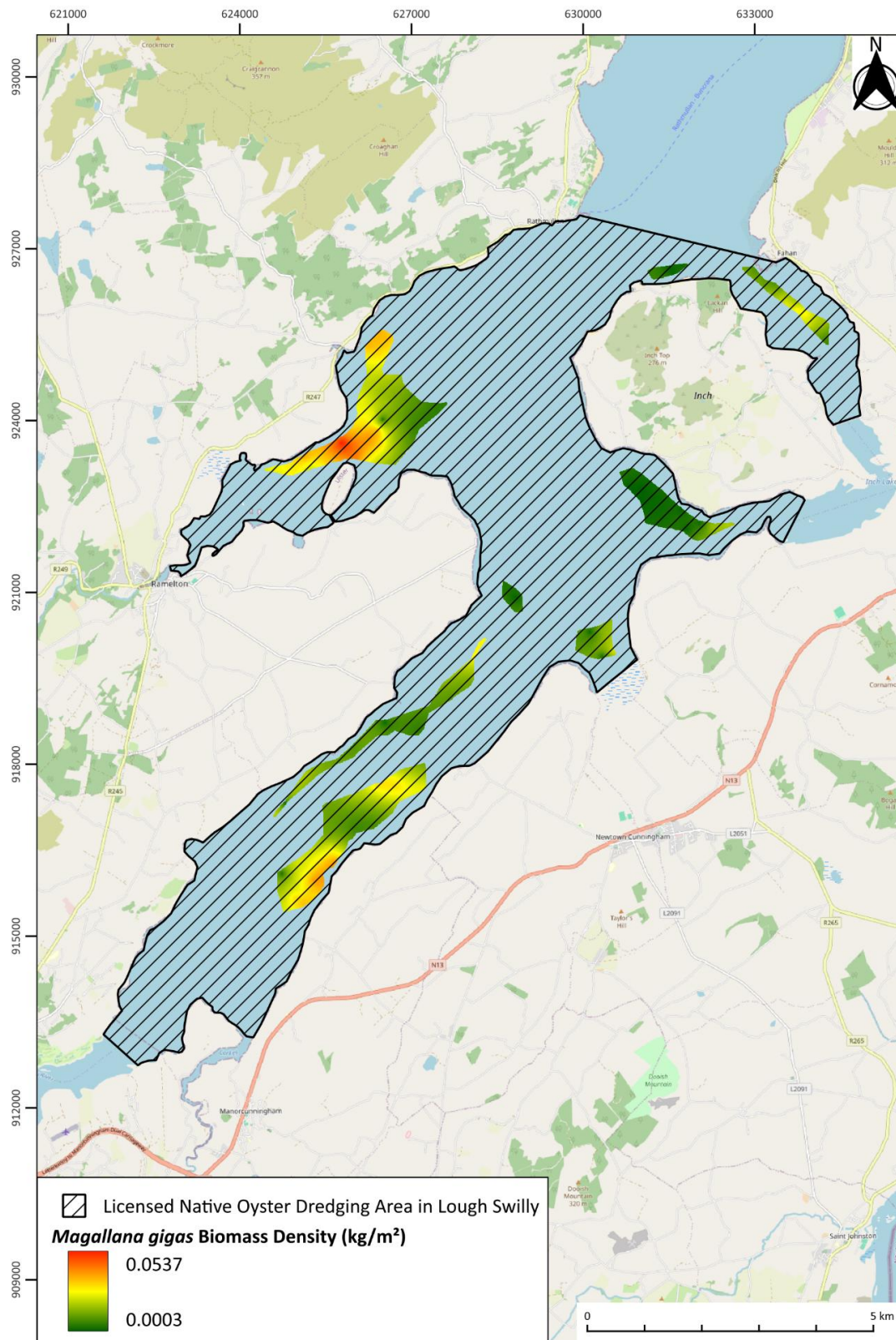


Figure 2.16: Latest available (2026) for Pacific oyster (*Magallana gigas*) biomass density within the surveyed Lough Swilly oyster grounds (provided by the Marine Institute).

2.2.6. Blacksod Bay

O. edulis biomass in Blacksod Bay was relatively low in the only year they were surveyed (2011) in which approximately half of the measured oysters were at or above the MLS.

2.2.6.1. *Ostrea edulis* biomass (2011)

The only available biomass estimate for Blacksod Bay is from the Marine Institute survey undertaken in January 2011 and reported by Tully and Clarke (2012). The survey estimated a native oyster biomass of 25 ± 6 tonnes within the surveyed area. This was among the lower biomass estimates recorded across the Irish oyster stocks surveyed during 2010–2012 (Tully & Clarke, 2012).

2.2.6.2. Size distribution of *Ostrea edulis* (2011)

A total of 421 native oysters were measured across 84 survey stations in Blacksod Bay in 2011. Shell length ranged from 26 to 121 mm, with a median of 76 mm and an interquartile range of 65–85 mm. The size distribution was therefore centred approximately on the statutory MLS.

Oysters ≥ 76 mm accounted for 51.5% of measured individuals, while 37.8% were between 55 and <76 mm and 10.7% were <55 mm. The most frequently represented size classes occurred broadly between 65 and 85 mm, with smaller oysters comprising a comparatively limited component of the measured population. The 2011 survey therefore described a population containing a substantial proportion of larger oysters at or above the MLS, alongside representation of intermediate and smaller size classes.

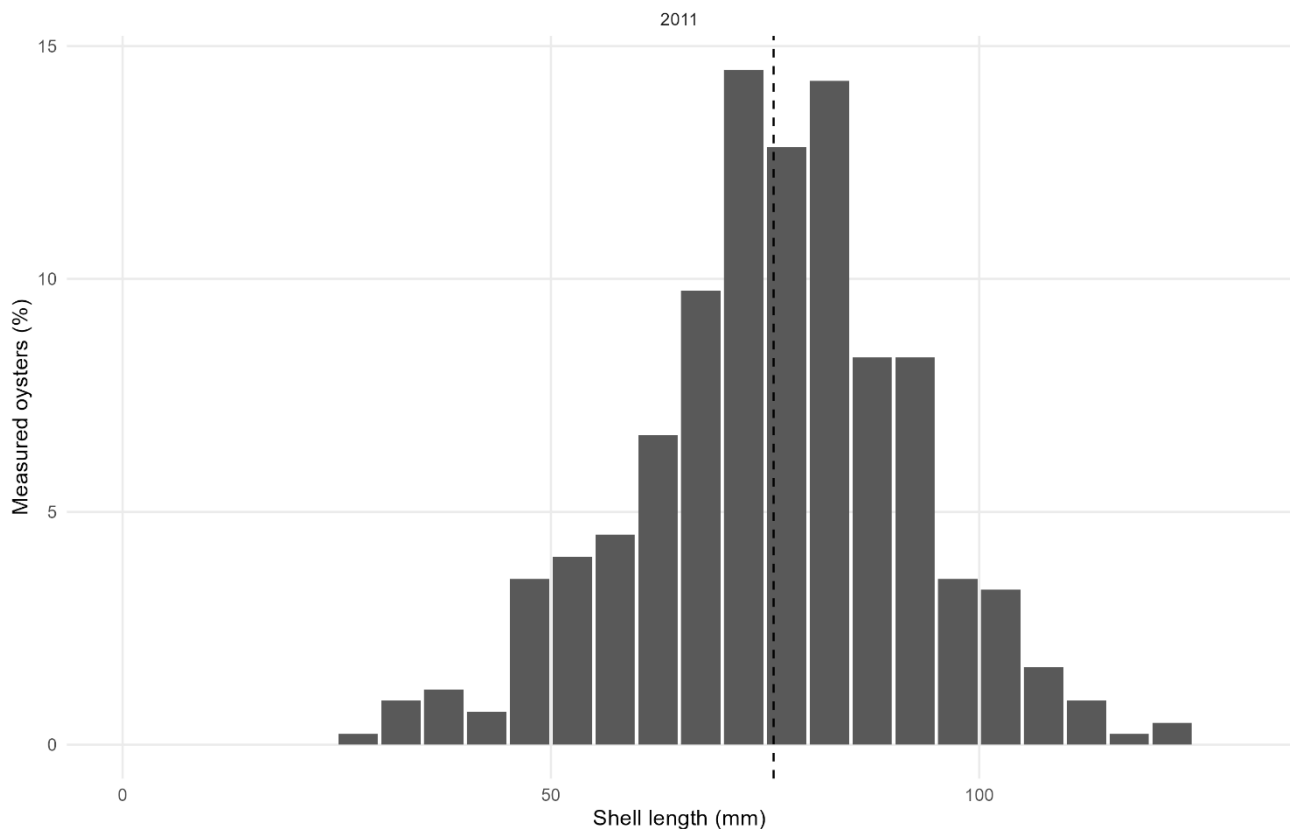


Figure 2.17 Size distribution of native oyster (*Ostrea edulis*) recorded during the 2011 Marine Institute survey of Blacksod Bay. The vertical dashed line indicates the statutory MLS of 76 mm.

2.2.6.3. Spatial Distribution of *Ostrea edulis* (2011)

The 2011 Marine Institute survey covered approximately 2.39 km² north of Claggan Point, immediately south of Belmullet. Total native oyster biomass was estimated at 25 ± 6 tonnes, among the lowest recorded across the Irish oyster beds surveyed during 2010–2012. Spatial distribution was patchy, with most of the northern bed supporting approximately 0.05–0.2 oysters m⁻² and localised areas reaching 0.2–0.3 oysters m⁻² or > 0.3 oysters m⁻². The smaller southern bed generally supported approximately 0.01–0.1 oysters m⁻², with a small, localised area exceeding 0.3 oysters m⁻². Overall densities ranged from 0 to 1 oyster m⁻².

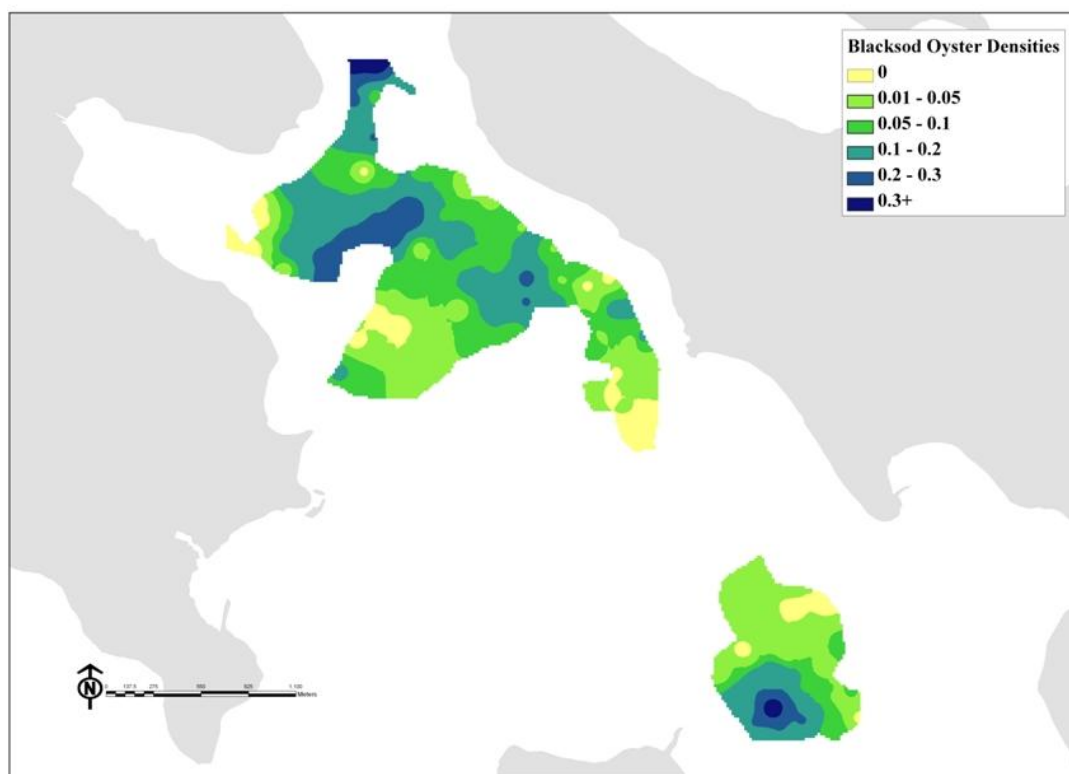


Figure 2.18 Spatial distribution of native oyster (*Ostrea edulis*) biomass density in 2011 for Blacksod Bay recorded by the Marine Institute (Tully & Clarke, 2012).

2.2.7. Synthesis of stock condition relevant to dredging assessment

Table 2-13 summarises the main quantitative stock indicators derived from the latest available MI survey data. The indicators describe the condition and size structure of each stock and provide biological context for the assessment of oyster removal, repeated physical disturbance, effects on recruitment and longer-term population resilience considered in Section 3.

Table 2-13 Summary of latest available Marine Institute oyster stock indicators.

Stock	Latest biomass survey	Raised biomass (t) ± 95% HDI	Mean biomass per surveyed area (t km ⁻²)	Median length (IQR) (mm)	<55 mm (%)	≥76 mm (%)
Blacksod Bay – <i>O. edulis</i>	–	–	–	76.0 (65.0–85.0)	10.7	51.5

Stock	Latest biomass survey	Raised biomass (t) $\pm$ 95% HDI	Mean biomass per surveyed area (t km ⁻²)	Median length (IQR) (mm)	<55 mm (%)	$\geq$ 76 mm (%)
Inner Tralee Bay – <i>O. edulis</i>	2025	409.8 $\pm$ 310.2	85.9	64.0 (50.0–72.0)	31.1	17.0
Outer Tralee Bay – <i>O. edulis</i>	2026	107.1 $\pm$ 61.7	19.3	32.0 (13.0–63.0)	65.9	11.6
Lough Swilly – <i>O. edulis</i>	2026	131.1 $\pm$ 46.1	18.2	62.5 (54.8–69.1)	25.3	10.3
Lough Swilly – <i>M. gigas</i>	2026	346.3 $\pm$ 194.3	48.1	87.7 (74.0–101.6)	N/A	N/A

Note: Biomass values are raised estimates with $\pm$ 95% highest density intervals (HDIs). Mean biomass per surveyed area is calculated as total estimated biomass divided by the area surveyed. The < 55 mm category is used as a descriptive indicator of the smaller native oyster component; $\geq$ 76 mm represents oysters at or above the statutory minimum landing size.

Across the stocks with recent biomass information, the MI data identify contrasting stock conditions rather than a common temporal response. Inner Tralee Bay continues to support the greatest absolute native oyster biomass but has undergone a recent reduction from the higher biomass recorded in 2022–2023. Outer Tralee Bay shows a strong recent input of small oysters together with an increase in biomass per surveyed area in 2026. Lough Swilly also shows evidence of recurrent native oyster recruitment and an increase in native oyster biomass in 2026, while remaining subject to substantial pressure from a naturalised Pacific oyster population whose biomass continues to exceed that of the native stock.

These differences are important to the dredging impact assessment because the ecological consequence of oyster removal and repeated disturbance depends not only on the area exposed to dredging, but also on the abundance, size structure, recruitment and wider pressure context of the affected oyster population.

3. Assessment of dredging impact pathways

This section considers the available evidence on the environmental effects of native oyster dredging, with particular focus on impact pathways that could affect the relevant Conservation Features and Conservation Objectives of Blacksod Bay, Tralee Bay and Lough Swilly. Evidence relating directly to *Ostrea edulis* fisheries is prioritised. Studies of other oyster species, bivalve fisheries and bottom towed fishing gear were considered where they provide relevant evidence concerning impact mechanisms or receptor sensitivity. The applicability of this supporting evidence to the three fisheries is considered in relation to differences in fishing gear, fishing intensity, environmental conditions and the sensitivity of the receiving habitats.

The assessment considered the scale, intensity, frequency, duration, reversibility and recovery potential of the identified effects. It distinguishes short-term physical disturbance associated with individual dredge passes from longer-term effects on oyster density, shell and cultch availability, habitat structure, recruitment and associated benthic communities. Particular emphasis is placed on determining whether effects are likely to be significant or persistent, having regard to the relevant Conservation Objective attributes and targets, the sensitivity and recovery potential of the affected receptors, and the interval between successive fishing seasons (Tully & Clarke, 2012; Kennon et al., 2023).

Ostrea edulis is an active suspension-feeding bivalve occurring in productive estuarine and shallow coastal environments. The species occurs on a range of seabed types, including muddy sand, muddy gravel, consolidated silt, shell-bearing sediment and rock, where sufficient stable material is available for settlement. Reproductive timing varies according to temperature and local environmental conditions, but spawning and larval release generally occur during the summer months, commonly between June and September. Eggs are fertilised internally and brooded to the veliger stage before the larvae are released into the water column. The species is highly fecund, with reported egg production ranging from approximately 91,000 to 2 million eggs and increasing with the age and size of the adult oyster (Paling et al., 2026).

Following their planktonic phase, larvae preferentially settle on clean, stable hard substrata, including living and dead bivalve shell. Suitable settlement habitat within exploited fisheries may therefore be maintained or enhanced through the placement of clean shell or other appropriate hard material. The suitability of shell material depends on its stability, condition, particle size and availability above the sediment surface, and highly fragmented or buried shell may not provide equivalent settlement habitat. Repeated settlement can result in the development of dense and potentially multi-layered oyster beds where recruitment is sufficient and fishing pressure and other forms of physical disturbance are limited (Paling et al., 2026; Preston et al., 2020).

Native oyster beds perform several ecological functions within estuarine and coastal ecosystems. The production of faeces and pseudofaeces increases the transfer of organic material from the water column to

the seabed and influences sediment biogeochemistry and the availability of food to other benthic organisms. Living oysters and accumulated shell also provide hard settlement surfaces and interstitial spaces within otherwise sedimentary habitats, increasing seabed complexity and supporting diverse associated communities (Paling et al., 2026; Lown et al., 2021). Oyster-bed condition may therefore be characterised using living-oyster abundance and density, population size structure, shell and cultch availability, seabed relief and complexity, and the composition of the associated benthic community.

Native oyster stocks in Ireland have undergone substantial historical declines. Intensive or unregulated fishing on formerly productive beds represented an important pressure, particularly where recruitment was intermittent or insufficient to replace fishing and natural mortality. The former Arklow oyster beds provide a documented Irish example in which sustained heavy fishing contributed to the collapse of an extensive offshore stock that may also have experienced irregular larval retention and settlement. Overfishing, unregulated fishing and poor compliance with management measures were also implicated in the decline of stocks within coastal bays and estuaries (Tully & Clarke, 2012).

Removal of adult oysters can reduce spawning-stock abundance and increase the distance between remaining individuals, potentially reducing fertilisation success and subsequent recruitment (Guy et al., 2019). Fishing may also remove, break, bury or redistribute shell material and cultch, while shell fragmentation may reduce seabed relief and the structural complexity of the oyster bed (Bromley et al., 2016; Kennon et al., 2023). These pressures operate alongside habitat loss and degradation, variable recruitment and disease. Bonamiosis, caused by the protozoan parasite *Bonamia ostreae*, has resulted in substantial mortality within native oyster populations. Disease is not treated as an impact caused directly by dredging unless a credible pathway exists through the movement of oysters, shell or equipment. It is however, relevant to receptor sensitivity and recovery because disease-related mortality may reduce the capacity of a population to withstand additional fishing mortality or recover following disturbance. The combined influence of fishing, habitat degradation, disease and irregular recruitment may therefore limit the ability of depleted populations to replace mortality and recover (Tully & Clarke, 2012; Pouvreau et al., 2023).

Irish native oyster fisheries have historically operated under a range of governance arrangements, including public access, Fishery Orders and aquaculture licences. Fishery Orders confer defined management or fishing rights within specified areas, while aquaculture licences authorise aquaculture activity at defined sites and do not necessarily confer equivalent management authority over a wider public fishery. Management authority was devolved to a number of local co-operatives through Fishery Orders issued during the late 1950s and early 1960s. Other native oyster fisheries operate within aquaculture-licensed or public-fishery frameworks. The Marine Institute has identified that management objectives, harvest control rules and reference points remain insufficiently developed in some fisheries. Locally applied Total Allowable Catches may be informed by annual

surveys or other available knowledge, but the evidential basis and application of these controls vary among fisheries (Tully & Clarke, 2012; Marine Institute, 2025).

The statutory Minimum Landing Size (MLS) for native oyster is 76 mm, with a voluntary limit of 78 mm applied in Tralee Bay. The MLS is generally reached at approximately four to five years of age, while sexual maturity normally occurs at a smaller size. This measure therefore provides some protection for oysters before recruitment to the fishery, although its effectiveness depends on the density and condition of the remaining spawning stock, recruitment frequency and the level of fishing mortality applied to oysters above the MLS (Tully & Clarke, 2012; Marine Institute, 2025).

The authorised commercial fishing in Tralee Bay generally extends from September to April inclusive, although the actual duration of fishing may be shorter depending on local opening and closing arrangements, stock availability, catch limits and weather conditions. Fishing therefore occurs largely outside the main summer spawning and larval-settlement period. However, activity commencing in September could overlap with late reproductive activity because spawning, larval release and settlement vary according to temperature and local environmental conditions. Management arrangements differed substantially among the fisheries. Within Blacksod Bay, the North Mayo Oyster Development Co-operative manages the native oyster beds under aquaculture licences. Fishing occurs mainly during February and March, with a small number of fishing days also occurring between September and December. Annual fishing effort is usually no more than eight fishing days, although a few additional fishing days may occur in some years. Fishing activity is therefore intermittent and of low annual duration. Lough Swilly operates as a public fishery with dredging authorised under Inland Fisheries Ireland licences between the 1st of September and the 30th of April.

The seasonal fishery closure in Tralee Bay provides an interval during which disturbed sediments, oyster populations and associated benthic communities may begin to recover. However, the presence of a closed period does not, by itself, establish that the effects of dredging are non-persistent. Physical disturbance associated with an individual dredge pass may be temporary, while the removal of adult oysters or settlement shell may affect oyster density, recruitment and oyster-bed structure over several subsequent fishing seasons. Repeated disturbance of the same grounds may also result in cumulative effects where recovery remains incomplete before fishing recommences (Kennon et al., 2023).

Oyster dredging may affect both the target population and the wider benthic environment through a combination of direct oyster removal and incidental mortality, physical seabed disturbance, removal or redistribution of shell and cultch, sediment resuspension and redeposition, and disturbance of associated fauna. Dredging may also affect recruitment and population recovery indirectly by reducing broodstock density, increasing the distance between reproductive individuals or reducing the availability and suitability of settlement substrate. The nature and magnitude of these effects depend on the characteristics of the dredge

and receiving habitat, the intensity, frequency and spatial distribution of fishing, the existing condition of the oyster population and oyster-bed habitat, and the period required for ecological recovery (McLavery et al., 2020; Kennon et al., 2023)

3.1. Impact Assessment

This impact assessment considers the effects arising from the dredging of native oyster (*Ostrea edulis*) populations, oyster-bed habitat, and the relevant Conservation Features within Blacksod Bay, Tralee Bay and Lough Swilly. The assessment is undertaken separately for each bay and for each identified impact pathway. The impact mechanisms comprise physical disturbance of oyster beds and associated benthic habitats, removal of oysters from the population, effects on oyster bed structure and habitat complexity, disturbance or displacement of associated benthic fauna, sediment resuspension and smothering, effects on recruitment, repeated or cumulative disturbance over successive fishing seasons, and potential interaction with other sensitive communities or Conservation Features.

The scale of fishing pressure and the response of the oyster populations are interpreted using the available Marine Institute stock assessment data, licence numbers as an indicator of potential fishery participation and literature on impacts of oyster dredging on relevant benthic habitats and oyster populations. Marine Institute data relating to oyster biomass (a proxy of population size) and catch size structure (a proxy of recruitment) provide evidence of stock condition over time. However, changes in these parameters cannot be attributed to dredging solely on the basis of temporal association because oyster populations are also influenced by recruitment variability, disease, environmental conditions, natural mortality, invasive species, management measures and changes in survey design or dredge efficiency. Total Allowable Catches indicate the maximum authorised level of removal, while landings provide a measure of the recorded harvest. Neither measure accounts fully for incidental mortality, damage to oysters that are contacted but not retained, the return and subsequent survival of undersized oysters, or the removal, breakage or displacement of shell material. These measures also provide no direct information on the area swept by the dredge or the frequency with which the same ground is contacted. Licence numbers similarly indicate the number of persons authorised to participate in a fishery but do not demonstrate whether each licence was used or quantify the duration, intensity or spatial distribution of fishing activity.

Sea surface temperature, salinity, water depth, and hydrodynamic exposure are not assessed as impact pathways because these environmental conditions are not caused directly by oyster dredging. They are, however, relevant to the interpretation of oyster sensitivity and recovery because they influence growth, spawning, larval development, larval retention, recruitment and natural mortality. Differences in environmental conditions may consequently contribute to variations in oyster population dynamics between

the three bays and may affect the capacity of a population to recover following fishing disturbance (Tully & Clarke, 2012). These factors will therefore be considered as part of the ecological context but will not be attributed to dredging unless an appropriate causal pathway exists.

The assessment is undertaken having regard to the site-specific Conservation Objectives for the relevant Special Areas of Conservation and, where applicable, Special Protection Areas associated with the three bays. For the Special Areas of Conservation, the assessment considers whether dredging could affect the extent, distribution, structure, biological composition or ecological functions of the relevant Annex I habitats and their constituent communities. Live oysters, accumulated shell, and associated fauna may form an important component of the structure and function of the protected marine habitats in these bays. This relationship is particularly direct in Tralee Bay, where an *Ostrea edulis* dominated community is expressly identified as a constituent community that must be conserved in natural condition. Maintenance or recovery of native oyster populations is therefore relevant where the condition of the oyster bed contributes to achievement of the applicable habitat Conservation Objectives (Tully & Clarke, 2012; NPWS, 2014d).

For the purposes of this assessment, significance relates to whether dredging could cause a biological or physical change that would be capable of compromising the applicable Conservation Objective attributes and targets or the ability to maintain or restore a Conservation Feature to favourable conservation condition. A change outside the range reasonably expected through natural processes may provide evidence of an anthropogenic effect, but departure from natural variability is not treated as the sole test of significance. The assessment must also consider the ecological importance, magnitude and spatial extent of the change and its implications for the structure, function and recovery of the affected receptor.

Persistence relates to whether an effect is continuous, ongoing or recurs with sufficient frequency to prevent the affected population, habitat or community from recovering within an ecologically relevant period. An effect may therefore be persistent even where the activity causing it is seasonal or intermittent. The level of disturbance will be assessed by considering the spatial scale, intensity, frequency, duration and reversibility of each effect, together with the sensitivity, existing condition and recovery potential of the affected receptor.

NPWS guidance distinguishes between sensitive keystone communities and other structurally important marine communities. Significant anthropogenic disturbance to the extent or quality of sensitive keystone communities should be avoided. For other constituent communities, NPWS advises that significant continuous or ongoing disturbance should not generally exceed approximately 15% of the interpolated area of each community type. Where this approximate area is exceeded, an increasingly cautious approach and further management review are recommended before additional activities are licensed. Intermittent or episodic

activities may be assessed on a site-specific basis, having regard to the nature and scale of the activity, and the resilience of the receiving habitat (NPWS, 2011c; NPWS, 2014c; NPWS, 2014d).

The seasonal cessation of fishing provides an interval during which disturbed sediments, oyster populations and associated benthic communities may recover. Persistence will be determined separately for each pathway by considering the frequency with which the same areas are dredged, the duration of the resulting ecological change and whether recovery is likely to occur before fishing recommences. Repeated disturbance over successive fishing seasons may result in a persistent or cumulative effect where recovery remains incomplete.

The assessment was therefore informed collectively by the Marine Life Information Network pressure benchmarks and sensitivity classifications for *Ostrea edulis* (Paling et al., 2026), oyster biomass data from Marine Institute stock surveys, size distribution data from Marine Institute stock surveys and other literature concerning the effects of oyster dredging on marine habitats and species relevant to Tralee Bay, Blacksod Bay and Lough Swilly. This evidence was considered together with the current scale, magnitude, persistence and management of each fishery, the characteristics and sensitivity of each receiving environment and the applicable Conservation Objectives for the SAC in each bay.

3.1.1. Physical disturbance of oyster dredging

3.1.1.1. Literature review

Oyster dredging causes a direct physical pressure on the seabed through the contact and movement of the dredge frame, teeth or blade across the sediment surface. Depending on the configuration and operation of the gear, this contact may result in abrasion, penetration or ploughing of surface sediments, formation of dredge tracks, overturning or displacement of shell and other seabed material, and damage to living oysters and associated epifauna. Repeated dredging may also flatten small-scale seabed relief and modify the physical structure of oyster-bed habitat. These changes have the potential to affect oyster-bed condition and associated benthic communities, although the occurrence, magnitude and persistence of the effect are dependent on the characteristics of the gear, the receiving habitat and the intensity and frequency of fishing (Cranfield et al., 2003; Sciberras et al., 2018).

The magnitude of physical disturbance is influenced by dredge width and weight, the presence and spacing of teeth or blades, tow speed, vessel power, the number of passes over an area and the proportion of the seabed swept. The response of the receiving habitat is influenced by sediment type, hydrodynamic exposure, existing shell density, seabed complexity and the presence of sensitive or habitat forming species. Experimental evidence indicated that the physical structure of clean sand could be restored within days to a few months, while restoration of muddy sand could take several months or more than one year. Following experimental

intertidal dredging, recovery of annelid and mollusc abundance was projected to occur after approximately 98 to 109 days in sand. Equivalent recovery estimates for fauna in muddy sand ranged from approximately 870 to 1,210 days, although these longer estimates were extrapolated beyond the 540 day monitoring period and were therefore uncertain. In biogenic habitats, the effects of scallop dredging were projected to persist for approximately 972 to 1,175 days, while studies of areas closed to scallop fishing indicated recovery periods of approximately two to five years (Kaiser et al., 2006). A later meta-analysis predicted that benthic community abundance following towed dredging could take three years or longer to recover and that species richness in biogenic habitats would not recover within three years, irrespective of gear penetration depth (Sciberras et al., 2018). Comparable quantitative recovery periods were not established for gravel and shell rich seabeds, although significant effects of scallop dredging were recorded during both short and longer term observations. The same dredging intensity may therefore produce materially different effects in different receiving environments. Although these studies did not examine the Irish native oyster fisheries and therefore do not provide direct predictions for them, they provide relevant analogue evidence of the potential physical effects of dredging on benthic habitats. The scale of the impact may be different as scallop dredges may be larger and are configured differently.

Physical structure is particularly important within *Ostrea edulis* habitat with living oysters and accumulated shell providing stable hard substrata, vertical relief, and interstitial spaces within otherwise sedimentary environments. These features provide settlement surfaces for oyster larvae and habitat for associated epifauna and mobile organisms. Oyster larvae preferentially settle on suitable hard substrata, including living oysters and clean dead shell with relatively low levels of silt, although settlement success is also influenced by larval supply, hydrodynamic conditions, predation, and post-settlement survival (Fulford et al., 2011; Bromley et al., 2016; Preston et al., 2020). Physical disturbance that breaks, overturns, buries, removes or redistributes shell may consequently alter the availability, stability, and spatial configuration of settlement habitat.

Bromley et al. (2016) undertook a three-year field experiment in Lough Foyle using a bladed oyster dredge frame with the collecting bag removed, leaving only the dredge as a harrow. Harrowing altered the composition and distribution of shell material, with harrowed plots containing a greater proportion and weight of oyster shell than unharrowed plots. The harrowing did not significantly change shell fouling or suspended particulate matter concentrations. However, a significant difference in epifaunal and mobile macrofaunal assemblage composition between harrowed and unharrowed treatments was found, although interannual variation had a stronger influence on assemblage composition than harrowing vs no harrowing (Bromley et al., 2016).

Another study did a spatial comparison within the rotationally managed Loch Ryan oyster fishery in southwestern Scotland (Kennon et al., 2023). It examined plots that had last been fished one, two and six years

pre survey. Oyster shell density, shell cover and macrofaunal biodiversity differed significantly among the plots, with the highest values recorded where six years had elapsed since fishing. Oyster shell density in the plot last fished six years before the survey was 8.5 times that recorded in the plot last fished one year before the survey, while Shannon Wiener diversity and Margalef's richness were 60.5% and 68.8% higher, respectively, in the six year plot. Oyster shell density and percentage cover were also positively related to macrofaunal biodiversity, indicating that the accumulation of living and dead shell contributes to habitat complexity and supports an increasingly diverse associated benthic community (Kennon et al., 2023). Modelling indicated that biodiversity recovery may extend over approximately ten years. However, in the absence of an undisturbed reference habitat, this period cannot be regarded as a confirmed estimate of the time required for full recovery. The findings indicate that changes to oyster-bed structure and associated biodiversity may persist for several years and that recovery may remain incomplete between successive fishing seasons.

Broader bottom fishing studies support the conclusion that the response to physical disturbance is strongly dependent on gear and habitat type. Kaiser et al. (2006) found that scallop dredging produced significant short term reductions in the abundance of benthic taxa in sand and muddy sand habitats, including negative responses among deposit feeding and suspension feeding fauna. Gravel habitats were negatively affected in both short and longer term observations, while biogenic habitats exhibited some of the greatest initial effects and prolonged recovery. The study also identified a relationship between restoration of the physical habitat and recovery of its biological community. However, scallop dredges generally differ from the oyster dredges used in the three Irish fisheries in weight, tooth configuration, penetration and towing arrangement. The reported effect magnitudes and recovery periods are therefore treated as supporting analogue evidence.

This broader evidence is supported by Sciberras et al. (2018), who found that a single pass of bottom towed fishing gear reduced benthic invertebrate abundance and species richness across the experiments included in their global meta-analysis. Although this study did not examine the Irish native oyster fisheries and therefore do not provide direct predictions for them, it provides relevant analogue evidence of the potential physical effects of dredging on benthic habitats. The scale of the impact may be different as scallop dredges may be larger and are configured differently. The magnitude of the response increased with gear penetration depth. High resolution fishing data from the Danish blue mussel fishery showed that increasing dredging intensity was associated at the regional scale with reduced benthic community biomass and shifts in species composition. The compositional change reflected differing responses among taxa, with many sedentary taxa occurring at lower densities in dredged areas and mobile gastropods and opportunistic oligochaetes occurring at higher densities. These opposing responses meant that no significant change in total community density was detected. The study also found no significant effect on functional richness or trait composition (McLaverly et al., 2020). The strength of these relationships varied locally according to background eutrophication, natural

disturbance and the availability of suitable reference conditions (McLavery et al., 2020). Although the study did not examine *Ostrea edulis* beds directly, it provides relevant supporting evidence that benthic responses to bivalve dredging depend on fishing intensity, spatial scale and receiving environmental conditions.

Long-term evidence indicates that repeated physical disturbance can contribute to more extensive habitat modification where oyster beds support complex biogenic reefs. Cranfield et al. (2003) associated prolonged oyster dredging in an *Ostrea chilensis* fishery with disruption of oyster-associated bryozoan reefs, redistribution of biogenic sediment and flattening of the seabed. Thurstan et al. (2013) documented the historical extirpation of *O. edulis* and the transformation of extensive biogenic habitat into less diverse soft sediment communities within the Firth of Forth. Intensive removal of adult and juvenile oysters occurred alongside damage from bottom trawling and dredging, which disrupted and removed the consolidated surface shell matrix. Other pressures included sediment deposition following land drainage and reclamation, physical smothering by suspended coal mine waste and dumped coal and ash, and industrial pollution from gas works, tanneries and dye works. The loss of shell substrate also reduced suitable settlement habitat and contributed to recruitment failure. These findings demonstrate the potential for repeated disturbance and removal, acting alongside other environmental pressures, to contribute to long term changes in oyster associated reef habitats (Thurstan et al., 2013).

For the purposes of the site-specific assessments below, physical disturbance includes direct abrasion and displacement of the seabed, damage or displacement of living oysters, breakage or redistribution of shell and cultch, alteration of small-scale seabed relief, and direct injury or displacement of fauna associated with the oyster grounds. Sediment resuspension and deposition and interactions with separate sensitive benthic communities are assessed independently in subsequent sections.

3.1.1.2. Blacksod Bay

Physical disturbance occurs where the oyster dredge contacts the seabed and may include local abrasion of sediment, formation of dredge tracks, displacement of oysters, breakage or redistribution of shell and cultch, and injury or displacement of associated benthic fauna. Within Blacksod Bay, the main receptors considered under this pathway are the native oyster grounds and the sedimentary communities within which they occur. Potential interaction with the separately mapped *Zostera*-, *Serpula*- and reef-dominated communities is considered under the assessment of interactions with other sensitive communities and Qualifying Interests.

The receiving habitat is predominantly sedimentary. Approximately 94.6% of the licensed area comprises the Fine sand with *Angulus fabula* community complex and a further 3.6% comprises the Sand with *Angulus tenuis* and *Pygospio elegans* community complex. These are predominantly sandy habitats and do not represent a documented topographic native oyster reef. Physical disturbance of mobile sedimentary habitat is generally

more reversible than disturbance of structurally complex biogenic habitat, while evidence from bottom-contact fishing studies indicates that previously fished communities are generally less strongly affected by additional disturbance than previously unfished communities (Kaiser et al., 2006; Sciberras et al., 2018). This is relevant because the Blacksod Bay oyster grounds have a long history of commercial exploitation and therefore represent a historically disturbed receiving environment. Tully and Clarke (2012) similarly noted that well-developed topographic native oyster reefs have not been documented in contemporary Irish shallow-water oyster fisheries.

The magnitude and frequency of the pressure are also limited by the low annual fishing effort. Fishing occurs mainly during February and March, with a small number of fishing days also occurring between September and December. Annual fishing effort is usually no more than eight fishing days, although a few additional fishing days may occur in some years. Direct seabed contact is therefore intermittent and of short total annual duration rather than continuous or ongoing. Most fishing occurs during the cooler months, although fishing in September and potentially later in autumn may overlap with the end of the period of active shell growth. Tully and Clarke (2012) identified strong seasonality in juvenile oyster growth and noted that dredge contact during active growth may damage the fragile growing shell margin. The small number of fishing days during September to December limits the frequency and duration of this potential interaction.

Tully and Clarke (2012) identified progressive shell breakage and homogenisation of oyster grounds as a potential consequence of repeated dredging. Localised changes of this kind cannot be excluded along individual dredge tracks. However, the sandy receiving habitat, its capacity for natural physical reworking and the low number of fishing days each year substantially reduce the likelihood that such effects would accumulate to produce significant bed-scale alteration. The absence of a contemporary stock time series means that stock stability should not be relied upon as a separate line of evidence for Blacksod Bay.

Assessment conclusion

Physical disturbance associated with native oyster dredging in Blacksod Bay is intermittent and is not continuous or ongoing. Taking account of the predominantly sandy and historically disturbed receiving habitat, the absence of documented biogenic oyster reef and the low annual fishing effort, local physical effects are not expected to develop into disturbance of a magnitude or duration capable of compromising the natural condition of the oyster-bearing sedimentary communities. The occurrence of a small number of additional fishing days between September and December does not materially alter this assessment because total annual fishing effort remains low and is separated by extended periods without dredging. Physical disturbance is therefore assessed as **not significant** and **not persistent**.

3.1.1.3. Tralee Bay

Physical disturbance occurs where the oyster dredge contacts the seabed and may locally abrade or displace sediment, overturn or damage living oysters, break or redistribute shell and cultch, reduce small-scale seabed relief and injure or displace associated benthic fauna. The main receptor is the *Ostrea edulis* dominated community within Inner and Outer Tralee Bay, which forms a constituent community of Mudflats and sandflats not covered by seawater at low tide [1140] and Large shallow inlets and bays [1160] and is required to be conserved in natural condition.

Commercial fishing is directed towards the established oyster grounds rather than uniformly across the full licensed area (Fishery Order) which includes much of Tralee Bay. The wider spatial overlap between the licence areas and other mapped benthic communities should therefore not be treated as the physical disturbance footprint of the fishery. Direct interaction at the margins of the oyster grounds, including areas of transition towards *Zostera*, *Mytilus* or reef communities, is considered separately under the assessment of interactions with other sensitive communities and Qualifying Interests.

The Tralee Bay oyster grounds are long-established, historically exploited sedimentary oyster beds rather than documented topographic oyster reefs. Although repeated dredging can progressively break shell and reduce small-scale relief (Tully & Clarke, 2012), the response of historically fished sedimentary communities to further disturbance is generally less pronounced than that of previously unfished or biogenic habitats (Sciberras et al., 2018). The current physical character of the Tralee Bay oyster grounds must therefore be considered in the context of a long history of recurrent dredging rather than as previously undisturbed habitat.

The fishery operates between September and April, with no commercial dredging between May and August. This removes direct physical disturbance during much of the main shell-growth period. Tully and Clarke (2012) demonstrated strong seasonal growth in Irish native oysters, including little or no winter growth in younger oysters, and identified damage to the actively growing shell margin as a potential effect of dredge contact. The timing of the fishery therefore substantially limits this particular effect.

The longer-term MI survey record provides an additional site-specific line of evidence. Surveys of Inner Tralee Bay generally encompass the entire known stock, historically distributed over approximately 4 km², while more recent Outer Tralee Bay surveys encompass the known patchy oyster grounds. Biomass varies substantially among years and should not be described as constant; nevertheless, the oyster stocks continue to occupy the established grounds and repeatedly contain smaller, intermediate and larger oysters. The surveys therefore provide no evidence of a progressive loss of the oyster grounds or of physical disturbance sufficient to prevent their continued recruitment and persistence (Tully & Clarke, 2012; Marine Institute, 2025).

Direct measurements of shell cover, fragmentation and seabed relief are not available, and local structural effects of dredging therefore cannot be excluded. However, if repeated shell breakage and flattening were occurring at a magnitude sufficient to materially impair oyster-bed function across the mapped community, a sustained deterioration in the ability of the grounds to support oysters and recruitment would be expected. This is not apparent from the available survey series. The evidence therefore supports local and reversible physical disturbance rather than progressive bed-scale deterioration.

Assessment conclusion

Physical disturbance associated with native oyster dredging in Tralee Bay is seasonal and is not continuous. Although local disturbance of oysters, shell material and associated fauna occurs along dredge tracks, the long-established and historically disturbed nature of the sedimentary oyster grounds, the annual May-August cessation of fishing and the continued persistence and replenishment of the established oyster stocks indicate that the pressure is not causing significant deterioration of the *Ostrea edulis* dominated community. Physical disturbance is therefore assessed as **not significant** in relation to the applicable Conservation Objectives for Mudflats and sandflats not covered by seawater at low tide [1140] and Large shallow inlets and bays [1160].

3.1.1.4. Lough Swilly

Physical disturbance occurs where the oyster dredge contacts the seabed and may locally abrade or displace sediment, overturn or damage living oysters, break or redistribute shell and cultch, alter small-scale seabed relief and injure or displace associated benthic fauna. The main receptor for this pathway is the *Ostrea edulis* dominated community, which is a constituent community of Estuaries [1130] and is required to be conserved in natural condition.

The active oyster fishery is directed towards known oyster beds and the full approximately 55.4 km² licensed area should not be interpreted as the area physically disturbed by dredging. The fact that the licence polygon overlaps all six constituent communities of Estuaries [1130] therefore identifies potential spatial pathways but does not demonstrate direct exposure of those communities. Physical disturbance associated with the targeted fishery is mainly concentrated within the oyster grounds; potential contact with other constituent communities at the margins or transitional areas of those grounds is assessed separately under interactions with other sensitive communities and Qualifying Interests.

Lough Swilly has a long history of native oyster exploitation. Oysters were recorded in commercial quantities in 1604 and a traditional fishery has operated in the lough for centuries. The present *Ostrea edulis* dominated community is therefore a historically disturbed sedimentary oyster habitat rather than an undisturbed or topographic native oyster reef. Tully and Clarke (2012) noted that well-developed topographic oyster reefs

have not been documented in contemporary Irish shallow-water fisheries and that Irish estuarine oyster grounds are naturally subject to sediment movement, salinity variation and other physical disturbance. The history of fishing is also relevant because benthic communities with previous exposure to bottom fishing generally experience lower additional depletion than comparable previously unfished communities (Sciberras et al., 2018).

The licensing period assessed in this report extends from September to April, leaving May to August without oyster dredging. Direct physical pressure is consequently seasonal rather than continuous and is absent during much of the main period of active shell growth. This reduces the potential for repeated damage to the fragile growing shell margin identified by Tully and Clarke (2012) and provides an annual period without further mechanical disturbance.

The comparable MI surveys undertaken between 2021 and 2026 generally encompass almost all of the known commercial native oyster stock in Lough Swilly. Biomass is variable rather than stable, but the population has persisted throughout the series, smaller oysters have been repeatedly represented and biomass increased again in 2026 following the lower 2025 estimate. These observations provide evidence that the established oyster grounds continue to support recruitment, survival and growth despite the long history of dredging and other pressures acting within the lough. They do not demonstrate that local shell breakage or small-scale changes in bed relief are absent, but they provide indirect evidence that physical disturbance has not reached a magnitude sufficient to prevent continued ecological functioning of the oyster grounds.

Tully and Clarke (2012) identified gradual shell breakage, homogenisation and loss of small-scale relief as potential consequences of repeated oyster dredging. Direct time-series measurements of these structural attributes are not available for Lough Swilly, so local effects cannot be excluded. However, there is no evidence from the available stock assessments of progressive loss of the native oyster population from the established grounds or of a sustained failure of recruitment that would indicate physical degradation of the bed at a scale sufficient to compromise its continued function. The substantial variation in native oyster biomass must also be considered in the context of other important pressures in Lough Swilly, including *Bonamia* and competition with the much larger naturalised Pacific oyster population, and cannot be attributed to physical dredging disturbance alone.

Assessment conclusion

Physical disturbance associated with native oyster dredging in Lough Swilly is seasonal and is not continuous. Localised disturbance of oysters, shell material, sediment and associated fauna is expected where dredging occurs, but the long history of fishing, sedimentary character of the oyster grounds, annual cessation of dredging during much of the active growth period and continued persistence and replenishment of the native

oyster population do not indicate progressive physical deterioration at a scale capable of compromising the natural condition of the *Ostrea edulis* dominated community. Physical disturbance is therefore assessed as **not significant** in relation to the Conservation Objective for Estuaries [1130].

3.1.2. Removal of oysters from the population

3.1.2.1. Literature review

Removal of oysters through commercial harvesting directly reduces living-oyster abundance and biomass and disproportionately affects the larger component of the stock. As larger oysters contribute to spawning-stock biomass, sustained removal may also reduce reproductive output and subsequent recruitment. For the purposes of this assessment, effects on recruitment arising through the reduction of spawning-stock abundance and density are therefore assessed as a consequence of oyster removal rather than as a separate impact mechanism. Removal of individual oysters is permanent; however, the resulting population-level effect is not persistent where recruitment and subsequent growth replace harvested individuals and maintain the abundance and size structure of the stock.

The effects of removal are not limited to adults above the MLS. Native oyster dredging is poorly size-selective because oysters frequently occur in aggregations or are attached to dead shells, resulting in the capture of all size classes, including recently settled spat. Catches are sorted on board, with oysters above the minimum landing size of approximately 76–78 mm retained and undersized oysters returned to the seabed, where survival is generally high unless individuals are damaged during handling or separation from larger oysters. Spat attached to retained oysters may also be removed from the population through landing, although in Tralee Bay efforts are made to detach and return these smaller individuals (though the survival rate of the spat returned in this way is thought to be low; Tully, O., *pers. comms.*).

Marine Institute surveys undertaken between 2010 and 2012 provide direct evidence of the selective removal of legal-sized *Ostrea edulis* from commercially exploited Irish stocks. Surveys completed following the oyster-dredging season generally recorded a lower proportion of oysters at or above the statutory Minimum Landing Size of 76 mm than surveys undertaken before fishing commenced. Using the observed difference in total mortality between surveys undertaken before and after fishing, mainly in Tralee Bay, Tully and Clarke (2012) estimated an instantaneous fishing-mortality coefficient of 0.9. This was considered equivalent to an annual fishing mortality of approximately 60% among legal-sized oysters. The findings demonstrate that seasonal dredging can remove a substantial proportion of the harvestable and reproductively important component of a native oyster stock.

The ecological consequences of removal are also influenced by oyster density and spatial distribution. Fertilisation in *O. edulis* occurs within the mantle cavity of the functional female following the release of sperm by neighbouring oysters. A reduction in population density and an increase in the distance between reproductive individuals may reduce fertilisation success. Dense commercial aggregations have been identified as important sources of larvae capable of contributing to the regeneration of surrounding oyster

grounds, while fragmented and dispersed populations may produce substantially fewer larvae (Kennedy & Roberts, 2006; Guy et al., 2019).

Recruitment in *O. edulis* is naturally variable and depends on broodstock condition, larval production, hydrodynamic retention, suitable settlement substrate and the survival of spat and juveniles. A fishery may therefore sustain a defined level of removal during periods of successful recruitment but experience progressive depletion where recruitment is weak or intermittent. Historical evidence from Ireland and Britain demonstrates that sustained exploitation has contributed to the exhaustion or extirpation of native oyster beds, particularly where fishing continued after stock density and catch rates had declined (Tully & Clarke, 2012; Thurstan et al., 2013).

Recovery cannot be inferred solely from the closure of a fishery or the presence of a seasonal period without dredging. Depleted populations may require several recruitment and growth cycles to rebuild the legal-sized and reproductively important components of the stock. Recovery may also remain limited by disease, invasive species, insufficient broodstock density or unsuitable settlement habitat after fishing pressure has been reduced. Declining abundance, decreasing population size structure, and poor recruitment have been recorded within southern English populations despite fishery closures and reduced fishing effort, demonstrating that cessation of removal does not necessarily result in population recovery where other limiting pressures remain (Helmer et al., 2019).

The persistence and significance of oyster removal depend on whether fishing mortality exceeds the capacity of the population to replace losses through recruitment and growth. This will be informed by trends in biomass and recruitment. Changes in these parameters must be interpreted in the context of natural mortality, disease, invasive species, environmental variability and survey uncertainty, as observed changes cannot necessarily be attributed to dredging alone.

3.1.2.2. Blacksod Bay

The magnitude of oyster removal in Blacksod Bay is mainly constrained by the low annual fishing effort. Fishing occurs mainly during February and March, with a small number of fishing days also occurring between September and December. Annual fishing effort is usually no more than eight fishing days, although a few additional fishing days may occur in some years. The opportunity for oyster removal therefore remains substantially lower than in fisheries operating regularly over several months. The MI also applies an average dredge-efficiency coefficient of approximately 35% to oyster survey catches, demonstrating that individual dredge passes do not capture all oysters present within the swept track, although this coefficient should not be interpreted as an annual exploitation rate.

The statutory MLS of 76 mm provides further protection to spawning stock. Native oysters generally reach the MLS at approximately four to five years of age but become reproductively mature at a smaller size and younger age. Consequently, a component of the sub-MLS population can reproduce before becoming available for legal retention. *O. edulis* is also highly fecund, producing approximately 0.5–2 million eggs per spawning depending on individual size and condition. The combination of a mature sub-MLS component, incomplete dredge catchability and the low number of fishing days each year provides substantial scope for reproductive oysters to remain within the population.

The available Blacksod Bay stock information is limited and is not sufficient to describe recruitment trends. The 2011 survey recorded a median shell length of 76 mm, with 37.8% of oysters between 55 and <76 mm and 51.5% at or above 76 mm, although Tully and Clarke (2012) considered evidence of recent spat settlement to be limited.

Assessment conclusion

Removal of oysters in Blacksod Bay is intermittent and is not continuous. Although individual landed oysters are permanently removed from the population, annual fishing effort remains low, usually comprising no more than eight fishing days, although a few additional fishing days may occur in some years. Together with the protection provided to mature sub-MLS oysters, this limits the annual opportunity for spawning-stock depletion. The additional fishing activity between September and December does not indicate a level of removal likely to prevent population replenishment or materially alter the native oyster component of the relevant benthic communities. The population-level effect of oyster removal is therefore assessed as **not persistent** and **not significant** in relation to Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160] and Reefs [1170].

3.1.2.3. Tralee Bay

Tralee Bay supports by far the largest native oyster stock in Ireland, with Inner Tralee Bay containing the majority of national native oyster biomass. This provides a substantially larger spawning-stock resource than occurs in the other fisheries considered in this assessment. Although biomass varies considerably among years, the long-term MI survey series does not indicate a progressive monotonic decline associated with harvesting. Inner Tralee Bay has continued to support several hundred tonnes of native oyster biomass throughout the survey series, while Outer Tralee Bay increased from approximately 48.4 tonnes in 2025 to 107.1 tonnes in 2026.

Importantly, this persistence has occurred despite historically substantial exploitation. Tully and Clarke (2012) estimated that fishing mortality in Inner Tralee Bay during 2010–2012 removed approximately 58–60% of

oysters recruited to the fishery (>76 mm) during a fishing season. The continued persistence of substantial biomass and repeated recruitment following this level of historical exploitation provides direct site-specific evidence that removal has not prevented replacement of harvested oysters at the population scale. The MI surveys generally encompass the entire Inner Tralee Bay stock, which is distributed over approximately 4 km², providing a consistent long-term basis for assessing stock condition.

The size-distribution data provide a complementary line of evidence. Smaller and intermediate oysters have been repeatedly recorded in both Inner and Outer Tralee Bay, demonstrating continued recruitment and progression through the population. In 2025, 31.1% of measured Inner Tralee Bay oysters were <55 mm, while the recent Outer Tralee Bay surveys showed particularly strong recruitment, including distinct modes at approximately 30 and 75 mm in 2025 and 65.9% of measured oysters <55 mm in 2026. These observations demonstrate that removal of legal-sized oysters has not prevented recruitment under the existing fishery regime.

This outcome is consistent with the existing management framework. The fishery is managed by the Tralee Oyster Fisheries Society under the Oyster Fishery Order (Brandon Bay, Tralee Bay and Ballyheige Bay), 1981. Management includes annual MI stock surveys, a TAC/catch limit set by the co-operative with reference to the stock assessment and local knowledge, a statutory MLS of 76 mm, a voluntary MLS of 78 mm, and a defined September–April fishing season with no fishing from May to August. Because oysters mature below the MLS, the size restriction allows a proportion of the stock to contribute to reproduction before becoming available for legal harvest. The annual survey and TAC additionally provide a mechanism through which removals can be adjusted in response to stock condition.

The recent reduction in Inner Tralee Bay biomass between 2023 and 2025 is recognised and should not be presented as evidence that biomass is invariant. However, this occurs within a highly variable long-term series and cannot be attributed to removal alone. Recruitment has continued, substantial spawning biomass remains, and there is no evidence that the established oyster grounds have undergone material loss as a consequence of harvesting. Tralee Bay also does not experience the naturalised Pacific-oyster pressure documented in Lough Swilly, and *B. ostreae* has not been detected under disease surveillance, increasing the capacity of the stock to accommodate managed fishing mortality relative to the more heavily pressured Lough Swilly stock.

Assessment conclusion

Oyster removal in Tralee Bay is seasonal and is not continuous. Although a substantial proportion of legal-sized oysters may be removed during individual fishing seasons, the large standing stock, recurrent recruitment, protection of mature sub-MLS oysters and the existing combination of annual stock assessment,

TAC, MLS and seasonal controls have maintained the capacity of the population to replenish harvested individuals. The available long-term stock record does not indicate that removal under the existing management regime has caused a persistent deterioration in the *O. edulis* dominated community. Removal and its consequent effect on spawning stock and recruitment are therefore assessed as **not persistent** and **not significant** in relation to the Conservation Objectives for Mudflats and sandflats not covered by seawater at low tide [1140] and Large shallow inlets and bays [1160].

3.1.2.4. Lough Swilly

The capacity of the Lough Swilly native oyster population to withstand removal is materially lower and more uncertain than in Tralee Bay. Recent native oyster biomass has been substantially lower, varying from approximately 67.1 tonnes in 2025 to 259.1 tonnes in 2022 and increasing to 131.1 tonnes in 2026. The 2021, 2024 and 2026 estimates were of a broadly similar order, indicating persistence of the stock, and the increase between 2025 and 2026 provides evidence of some capacity for recovery. However, the absence of a monotonic decline does not demonstrate that current fishery removals are within the replacement capacity of the stock.

The size structure provides reason for caution. Legal-sized oysters have generally represented a small component of the recent stock. In the April 2025 post-fishery survey, estimated biomass ≥ 76 mm was only approximately 0.88 tonnes, equivalent to approximately 1.3% of total native oyster biomass, and the MI reported no strong indication of spat recruitment. The 2026 survey was more favourable, with 10.3% of measured oysters ≥ 76 mm and 25.3% < 55 mm, but the recent size distributions do not show the consistently strong and clearly separated recruitment cohorts evident in Tralee Bay. The increase in 2026 is encouraging but is insufficient on its own to demonstrate sustained stock recovery or that annual removals are being replaced.

The stock is also subject to additional mortality and competitive pressures that reduce its capacity to accommodate fishing mortality. *B. ostreae* occurs in Lough Swilly and contributes additional mortality, while naturalised Pacific oyster *M. gigas* competes with native oyster for habitat and has become dominant across parts of the historical native oyster grounds. Pacific oyster biomass was approximately 3,276 tonnes in 2022 and 1,539 tonnes in 2024, compared with native oyster biomass of 259 and 111 tonnes respectively. Although Pacific oyster biomass declined to approximately 346 tonnes in 2026, it remained approximately 2.6 times greater than native oyster biomass. Tully and Clarke (2012) identified competition from Pacific oyster as a realised threat to the maintenance of native oyster populations in Lough Swilly.

These biological pressures are compounded by a lack of fishery management. Lough Swilly operates as a public fishery and no current stock-linked TAC or equivalent annual limit on native oyster removal has been

identified. Twenty-four dredge licences were recorded in 2026, but the number actively used and fishing effort could not be quantified. The Lough Swilly Wild Oyster Society does not have legal authority equivalent to the Tralee Fishery Order, and the proposed 2012–2017 Fishery Natura Plan was not implemented. That plan itself recognised the risk associated with uncontrolled removal and proposed an exploitation limit of 33% of pre-fishery spawning-stock biomass, closures where oyster density was <0.25 oysters m^{-2} , protection of juvenile-dominated areas and establishment of a spawning reserve.

The statutory 76-mm MLS and seasonal closure from May-August provides some protection of the spawning and growth period. However, unlike Tralee Bay, there is currently no demonstrated mechanism linking the quantity removed each year to the available spawning-stock biomass or subsequent recruitment. Given the relatively low native-oyster biomass, weak recent recruitment signal, additional mortality from *Bonamia*, strong competition from naturalised Pacific oyster and absence of a stock-linked catch limit, the available evidence does not demonstrate that annual removals can be replaced consistently before subsequent fishing occurs.

Assessment conclusion

Oyster removal in Lough Swilly is not continuous as a fishing activity; however, its population-level effects may persist between successive fishing seasons where recruitment and growth do not replace harvested oysters. The native oyster stock persists and showed improved biomass and size structure in 2026, but it remains relatively small and is subject to substantial additional biological pressures. In the absence of a stock-linked TAC, quantified annual exploitation rate or evidence of consistently strong recruitment, it cannot be demonstrated that current removals are compatible with maintaining the *O. edulis* dominated community in natural condition. Removal of oysters and its consequent effects on spawning stock and recruitment are therefore assessed as **potentially persistent** and **significant** in relation to the Conservation Objective for Estuaries [1130].

3.1.3. Sediment resuspension and smothering

3.1.3.1. Literature review

Passage of an oyster dredge across the seabed may disturb and resuspend unconsolidated sediment. This suspended material is then dispersed by currents or subsequently deposited within or beyond the area dredged. Where deposited sediment accumulates on living oysters, exposed shell or the surrounding seabed, it may bury settlement surfaces, smother spat and alter the condition of oyster habitat and associated benthic communities. Resuspension and subsequent deposition therefore provide a pathway through which dredging may affect native oysters and the protected communities within which they occur.

The source of the potential effect is licensed commercial native oyster dredging. The pathway comprised the resuspension of seabed sediment through contact with the dredge and the subsequent transport and deposition of disturbed material within the oyster grounds. The receptors were the *Ostrea edulis* dominated communities identified as constituent communities of the relevant qualifying interest habitats.

The magnitude and duration of the effect depends on the quantity and particle size of the sediment disturbed, the number and duration of dredge tows, the frequency with which the same area is dredged and the hydrodynamic conditions governing dispersion and deposition. Fine sediment may remain in suspension for longer and be transported beyond the dredge track, while coarser material is more likely to settle closer to the area disturbed. The occurrence of sediment resuspension does not itself constitute a persistent effect, as suspended material may be dispersed or deposited temporarily within a naturally dynamic environment. Persistence depends on whether deposited sediment remains within the oyster habitat or whether repeated dredging causes deposition to recur before the affected surfaces and communities recover.

Historical accounts from the Wadden Sea associated the poor condition of oyster beds and limited recruitment with a combination of management practices and environmental pressures, including the removal of large oysters and shell, siltation and competition with other filter feeders. Siltation was identified as a particular concern within shallow estuarine systems because accumulated fine sediment may bury shell and smother oyster spat (Berghahn & Ruth, 2005). This evidence supports the potential for sediment deposition to affect oyster habitat and recruitment but does not establish that siltation was the sole cause of the changes recorded or provide a deposition threshold that can be applied to the assessed fisheries.

Experimental harrowing undertaken using an oyster dredge frame in Lough Foyle did not result in a significant increase in suspended particulate matter, and the results indicated that the accumulation of silt was unlikely to account for the limited oyster settlement recorded during the study (Bromley et al., 2016). Though

harrowing without a collecting bag did not reproduce all aspects of commercial oyster dredging, Bromley et al. (2016) still highlighted that contact with an oyster dredge does not necessarily result in sustained sediment accumulation. They also show that the absence of oyster settlement cannot be attributed to siltation alone.

The main consequence of smothering for native oyster habitat is the burial or covering of living oysters, spat and shell surfaces. Deposited sediment may reduce the availability of exposed shell for settlement and may affect benthic fauna occurring within or on the surface of the sediment. The quantity deposited, the duration of exposure and the condition of the affected oysters and communities must also be considered. Effects on oyster settlement and population recruitment were assessed separately under the relevant impact pathway, while the present pathway considered the direct effects of sediment resuspension, deposition and smothering.

Sediment resuspension and subsequent deposition may affect different life stages of *Ostrea edulis* through different mechanisms. Planktonic larvae would not be directly smothered by seabed deposition, but sediment deposited on exposed shell or other suitable hard substrate may reduce the availability and quality of settlement habitat. Recently settled spat may be vulnerable to burial or smothering where deposition is sufficiently extensive or persistent. Juvenile and adult oysters may also be affected where repeated deposition covers living oysters, restricts feeding or alters the stability and physical structure of the oyster grounds. The sensitivity of each life stage would depend on the thickness, duration and recurrence of deposition, together with local hydrodynamic conditions and the availability of suitable settlement substrate.

The site-specific assessments considered the mapped sedimentary and benthic communities, their overlap with the licensed dredging areas, the distribution of native oysters, available information on fishing activity and management arrangements. No direct measurements of suspended sediment concentrations, the extent or thickness of deposition, the duration of sediment plumes or the condition of oysters and benthic communities following commercial dredging were available for Blacksod Bay, Tralee Bay or Lough Swilly. Instead, available information was used to identify where the pathway could occur and the factors influencing its likely magnitude and duration, but it did not provide a direct measurement of sediment resuspension or smothering caused by oyster dredging.

Persistence was assessed by considering whether deposited sediment could remain within oyster habitat beyond the interval between fishing events or whether repeated dredging could prevent the clearance of deposited material and recovery of the affected surfaces and communities. Significance was assessed by reference to the scale, extent and duration of the effect and whether it could compromise native oyster survival, the availability of suitable settlement surfaces or the maintenance of a protected community in a condition consistent with the relevant site specific conservation objective targets.

Deposited sediment may cover living oysters, bury exposed shell or other suitable settlement substrate, and smother spat or benthic fauna where deposition is sufficiently extensive or persistent (Berghahn & Ruth, 2005; Bromley et al., 2016). Available information on sediment characteristics, the distribution of oyster grounds and benthic communities, the environmental setting of each bay, fishing activity and management arrangements was used as indirect evidence within the site-specific assessments. These data were considered alongside the Marine Life Information Network (MarLIN) assessment of smothering and siltation rate changes under the light deposition benchmark. This pressure represented the pathway through which sediment resuspended by an oyster dredge may subsequently settle on living oysters, spat, exposed shell or associated benthic habitat.

MarLIN classified *Ostrea edulis* as having High sensitivity to deposition of up to 5 cm of fine material in a single discrete event. This benchmark described receptor sensitivity and did not establish that oyster dredging would generate deposition of this magnitude. The potential significance of sediment resuspension and smothering was assessed by considering the sensitivity classification alongside the expected scale and duration of sediment disturbance, the characteristics of the receiving environment and the potential for sediment dispersion or accumulation.

3.1.3.2. Blacksod Bay

Within the Mullet/Blacksod Bay Complex SAC, the Conservation Objectives did not identify an *Ostrea edulis* dominated community. Native oyster was not a Qualifying interest or the subject of a separate population target. It was nevertheless identified as a notable species occurring towards the head of Blacksod Bay, while small patches were recorded at Cartron within the Sand with *Angulus tenuis* and *Pygospio elegans* community complex. The Fine sand with *Angulus fabula* community complex was a constituent community of Large shallow inlets and bays [1160]. The Sand with *Angulus tenuis* and *Pygospio elegans* community complex was a constituent community of both Mudflats and sandflats not covered by seawater at low tide [1140] and Large shallow inlets and bays [1160]. The applicable Conservation Objectives require these communities to be conserved in natural condition, subject to natural processes. Effects on native oysters, spat and exposed shell were therefore relevant where they contributed to, or provided an indication of change in, the structure and function of these constituent communities of the Qualifying interest habitats rather than as a separate native oyster population target. Sediment resuspension and subsequent deposition provided a pathway through which dredging could affect these receptors (NPWS, 2013a; NPWS, 2014a; NPWS, 2014c).

The licensed native oyster dredging area extended across approximately 9.500 km². The Fine sand with *Angulus fabula* community complex accounted for approximately 94.6% of the licensed area shown in **Figure 2.1**, while approximately 3.7% overlapped the Sand with *Angulus tenuis* and *Pygospio elegans* community

complex. Smaller overlaps occurred with the Intertidal reef and Sheltered subtidal reef community complexes, which accounted for approximately 1.1% and 0.6% of the licensed area, respectively. These spatial relationships identified the communities that could potentially be exposed but did not represent the area actually dredged or the extent of sediment deposition.

Very fine and fine sand together accounted for between 79.1% and 98.1% of the sediment within the main Fine sand with *Angulus fabula* community complex. Silt and clay generally accounted for less than 3%, while gravel and other coarse fractions generally accounted for less than 5%. The inner bay variant contained more variable sand and gravel fractions, although a corresponding silt and clay range was not available. The recorded sediment composition indicated that most material disturbed within the main community would comprise sand rather than a large proportion of finer cohesive sediment.

Sand disturbed by dredging would be expected to settle comparatively rapidly within or close to the dredge track. Fine and very fine sand could remain in suspension for longer and could be deposited adjacent to the disturbed area. The smaller silt and clay fraction could be transported farther where local currents permitted. Blacksod Bay is shallow and generally has weak tidal streams. However, no measurements or modelling were available to determine suspended sediment concentrations, plume duration, transport distance or deposition thickness within the commercially dredged areas.

The High MarLIN sensitivity classification for *Ostrea edulis* applied to deposition of up to 5 cm of fine material in a single discrete event. The recorded sediment composition and potential for local deposition were considered against this sensitivity. However, no evidence demonstrated that commercial oyster dredging generated deposition approaching the specified benchmark or caused sustained burial of oysters, spat or exposed settlement surfaces. Local and temporary covering of oysters or seabed habitat could occur within or adjacent to individual dredge tracks, but the available information did not indicate widespread or prolonged smothering.

The frequency and duration of the pathway are substantially limited by the low annual fishing effort. Fishing occurs mainly during February and March, with a small number of fishing days also occurring between September and December. Annual fishing effort is usually no more than eight fishing days, although a few additional fishing days may occur in some years. Sediment disturbance is therefore intermittent and of short total annual duration, with extended periods between fishing activity during which no commercial oyster dredging occurs. This low fishing effort means that effects from suspended sediment or smothering are expected to be highly localised in space and time, and likely deposition height would be <5 cm.

Assessment Conclusion

Sediment resuspension and deposition may occur locally where the dredge contacts the seabed. However, the predominantly sandy seabed type in the licensed area, the low proportion of silt and clay and the absence of evidence that deposition reached the applicable MarLIN benchmark indicate that widespread or prolonged smothering is not expected.

The low number of fishing days each year means that sediment disturbance is intermittent and is separated by extended periods without further dredging. The small number of fishing days occurring between September and December does not materially increase the frequency or duration of the pathway to a level at which repeated or prolonged sediment effects would be expected. Sediment resuspension and smothering arising from native oyster dredging in Blacksod Bay are therefore assessed as **not persistent** and **not significant** in relation to Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160] and Reefs [1170].

3.1.3.3. Tralee Bay

Within Tralee Bay and Magharees Peninsula, West to Cloghane SAC, sediment resuspension and subsequent deposition could affect the *Ostrea edulis* dominated community and the other constituent sedimentary communities occurring within the proposed dredging areas. The qualifying interests of this SAC were identified as Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160] and Reefs [1170].

The proposed dredge area in Outer Tralee Bay extended across approximately 14.996 km². The Mixed sediment with crustaceans, bivalves and polychaetes community complex accounted for approximately 70.6% of this area, while the *Ostrea edulis* dominated community accounted for approximately 15.2%. The proposed dredge area in Inner Tralee Bay area extended across approximately 10.873 km², of which approximately 36.18% comprised the *Ostrea edulis* dominated community. The proposed dredge areas in Tralee Bay also overlapped other sedimentary, *Zostera*, *Mytilus* and reef communities that could potentially be exposed where a sediment transport pathway occurred.

The Mixed sediment with crustaceans, bivalves and polychaetes community complex was characterised mainly by mixed and coarse sediment. Silt and clay generally accounted for less than 8%, although higher proportions occurred at some sheltered locations. The Sand with *Nephtys cirrosa* community complex was predominantly composed of sand, with silt and clay generally accounting for less than 3%. Higher proportions of fine sediment occurred in sheltered areas and within parts of the Sand to sandy mud with polychaetes and bivalves community complex, particularly around Spa, Derrymore Island and Scraggane Point.

These sediment characteristics indicated that much of the material disturbed in the proposed dredge areas in Tralee Bay would comprise sand or mixed sediment. Coarser material would be expected to settle within or close to individual dredge tracks, limiting the duration and spatial extent of suspension. Localised resuspension and deposition could be greater within sheltered areas containing higher proportions of silt and clay. However, the available sediment data did not establish whether these finer deposits coincided with the areas subject to active or repeated commercial dredging.

The High MarLIN sensitivity classification for *Ostrea edulis* applied to deposition of up to 5 cm of fine material in a single discrete event. The presence of locally finer sediment meant that temporary covering of oysters, spat and exposed shell could not be excluded. However, no evidence demonstrated that commercial dredging generated deposition approaching this benchmark within the *Ostrea edulis* dominated community.

The fishery operated between September and April, with no commercial oyster dredging between May and August. Sediment disturbance was therefore seasonal rather than continuous and would not occur during the main growing and spawning season of native oysters during the summer months. The seasonal closure provided a period during which suspended material could settle or disperse and during which affected seabed surfaces could partially recover. This interruption substantially reduced the potential for sediment resuspension and deposition to remain continuous or to accumulate throughout the year.

Marine Institute surveys continued to record substantial oyster biomass and the presence of smaller oysters within Inner and Outer Tralee Bay. These results did not directly measure suspended sediment or deposition. They nevertheless provided indirect evidence that sediment disturbance under the existing fishery had not prevented the continued survival, recruitment and growth of oysters within the established grounds to maintain biomass within the historical range of the MI native oyster stock survey (2010-2025).

Localised and temporary sediment resuspension and deposition could occur where dredging disturbed areas containing fine sediment. However, much of the proposed dredge areas in Tralee Bay comprised sand or mixed sediment, and no evidence indicated deposition at the applicable MarLIN benchmark or widespread smothering of the *Ostrea edulis* dominated community or other sensitive receptors. The cessation of dredging between May and August also prevented the pressure from remaining continuous throughout the year.

Assessment Conclusion

Sediment resuspension and deposition arising from native oyster dredging in Tralee Bay are expected to be localised and seasonal. The available evidence did not indicate widespread or prolonged smothering of living oysters, spat, settlement surfaces or associated benthic communities. No sediment transport pathway of sufficient magnitude or duration to affect *Ostrea* dominated communities was demonstrated.

The annual cessation of dredging between May and August interrupts the pressure and provides a period for sediment dispersal and habitat recovery. Sediment resuspension and smothering arising from native oyster dredging in Tralee Bay are therefore assessed as **not persistent** and **not significant** in relation to Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160] and Reefs [1170].

3.1.3.4. Lough Swilly

Within Lough Swilly SAC, the Conservation Objectives identified the *Ostrea edulis* dominated community as a constituent community of Estuaries [1130]. The community occurred intertidally and subtidally, mainly within the southern part of the lough from Ballygreen Point and Ballymoney Point southwards to Ardrumman and Ballylawn Point, with a smaller area at Ballykenny Point. The applicable Conservation Objective requires the *O. edulis* dominated community and the other constituent sedimentary communities of Estuaries [1130] to be conserved in natural condition, subject to natural processes.

The licensed dredging area extended across approximately 55.413 km² and overlapped all six constituent communities of Estuaries [1130]. The *Ostrea edulis* dominated community accounted for approximately 16.4% of the licensed area, equivalent to approximately 9.061 km². The remaining licensed area included fine sand, mixed sediment, muddy fine sand and mud habitat. However, oyster dredging is largely confined to the *Ostrea edulis* dominated community. The *Ostrea edulis* dominated community occurred within the Intertidal mixed sediment with polychaetes and Subtidal mixed sediment with polychaetes and bivalves communities. The intertidal community contained variable proportions of gravel, sand, silt and clay. The subtidal community was mainly characterised by fine sand, with gravel also forming a substantial sediment fraction at some locations.

Higher proportions of fine sediment occurred within other parts of the licensed area. Silt and clay accounted for between 12% and 33% of the Muddy fine sand with *Thyasira flexuosa* community and between 39% and 96% of the Mud community complex. These communities contained sediment that could remain in suspension for longer than sand and could be transported beyond the immediate dredge track if dredging were to occur there.

Localised sediment resuspension was expected where the dredge contacted mixed or fine sediment within the oyster grounds. Sand and coarser material would generally settle within or close to the area disturbed, while finer material could remain in suspension for longer and be deposited over a wider area. No measurements or modelling were available to quantify suspended sediment concentrations, plume duration, transport distance or deposition thickness. However due to the relatively shallow teeth in the dredges used (only entering 1-2 cm deep into sediment), the available evidence did not indicate that sediment resuspension

would result in widespread or sustained deposition across the *Ostrea edulis* dominated community or the other constituent communities of Estuaries [1130].

The High MarLIN sensitivity classification for *Ostrea edulis* applied to the deposition of up to 5 cm of fine material in a single discrete event. The presence of mixed and locally muddy sediment meant that temporary covering of oysters, spat and settlement surfaces could not be excluded. However, no evidence demonstrated deposition approaching the specified benchmark within the oyster grounds. The sensitivity classification was therefore considered as evidence of the potential consequence where the benchmark was reached rather than evidence that smothering of this magnitude occurred in Lough Swilly.

The Lough Swilly native oyster fishing season operates from 1st of September to 30th of April, with no commercial oyster dredging between 1st of May and 31st of August. Sediment resuspension and deposition are therefore seasonal rather than continuous or ongoing. The annual four month closure removes the pressure and provides a period during which affected seabed habitats can recover. This seasonal closure substantially reduces the potential for recurring sediment deposition to accumulate continuously throughout the year.

Assessment Conclusion

Sediment resuspension and deposition may occur locally where oyster dredging disturbs mixed or fine sediment within the established fishing grounds. However, the licensed area does not represent the active dredging footprint, and the presence of muddy communities within the wider polygon does not demonstrate that these areas are subject to repeated disturbance. No evidence indicated deposition at the applicable MarLIN benchmark or widespread smothering of living oysters, spat, settlement surfaces or constituent benthic communities.

The cessation of dredging between 1st of May and 31st of August interrupts sediment disturbance and provides an annual interval for habitat recovery. Sediment resuspension and smothering arising from native oyster dredging in Lough Swilly are therefore assessed as **not persistent** and **not significant** in relation to Estuaries [1130].

3.1.4. Potential interaction with other sensitive benthic communities

3.1.4.1. Literature review

This pathway does not reassess the direct effects of seabed disturbance or sediment resuspension and deposition considered under the preceding mechanisms. It considered whether these effects could give rise to a separate credible interaction with other sensitive protected marine communities in each bay such as

Zostera dominated community or the *Serpula vermicularis* dominated community complex. The source of the potential effect was licensed commercial native oyster dredging. The pathways comprised direct contact between the dredge and the seabed and the resuspension, transport and subsequent deposition of disturbed sediment. The receptors were the *Zostera* dominated community and the *Serpula vermicularis* dominated community complex identified within the relevant Qualifying Interest habitats of the Mullet/Blacksod Bay Complex SAC, and the *Zostera*, *Sabellaria*, and *Mytilus* dominated communities in Tralee Bay and Magharees Peninsula, West to Cloghane SAC.

A potential direct interaction was identified where the licensed dredging area overlapped the mapped distribution of either community. An indirect interaction required a credible hydrodynamic or sediment transport pathway through which material disturbed elsewhere could be deposited within the community. Spatial overlap was treated as evidence of potential exposure rather than evidence that dredging had occurred within, or adversely affected, the community.

Direct dredge contact with a *Zostera* dominated community may damage or uproot shoots and rhizomes, disturb associated fauna and increase fragmentation of the meadow. An Irish before after control impact experiment did not identify significant effects of traditional oyster dredging on *Zostera marina* rhizome biomass, shoot density or blade density during the subsequent growing season. The results were specific to the conditions examined, including dredging during early spring, relatively limited gear penetration and the historical exposure of the receiving habitat to dredging. Higher intensity dredging was associated with reduced abundance of sessile fauna within the same experiment. The findings demonstrated that responses differed among receptors and dredging intensities and did not establish that effects would be absent under different environmental or operational conditions (Breen et al., 2024).

The *Serpula vermicularis* dominated community complex in Blacksod Bay comprised distinct clusters of biogenic reef formed by aggregations of calcareous tubes within otherwise soft sediment. The reef structures provided habitat for associated sessile and mobile fauna. The applicable Conservation Objectives required the avoidance of mortality to living *S. vermicularis* reef and significant disturbance involving the destruction of reef structures (NPWS, 2014c). Direct contact with an oyster dredge could break or displace living tubes, remove sections of reef, reduce structural complexity and disturb the associated biological community. Recovery of individual worms or surviving reef fragments would not necessarily restore the physical structure and ecological functioning of the reef, which may require many years to develop. MarLIN classified resistance to surface abrasion as None and resilience as Very Low, resulting in High sensitivity. Resistance to subsurface penetration was also classified as None and resilience as Very Low, resulting in High sensitivity. Evidence from other towed fishing gear indicated that structurally complex biogenic habitats could experience substantial initial effects and extended recovery periods, while increasing bivalve dredging intensity had been associated

with reduced benthic biomass and changes in species composition (Kaiser et al., 2006; Sciberras et al., 2018; McLaverty et al., 2020). This evidence supported the identification of a credible impact pathway but did not provide an effect magnitude or recovery period that could be applied directly to the *S. vermicularis* dominated community complex within Blacksod Bay.

Zostera marina reproduces through seed production and vegetative extension of rhizomes. Although seed production may be high, seed and seedling mortality are also high, and dispersal is generally limited. Vegetative growth is therefore the main mechanism of local expansion and recovery following small-scale disturbance. Narrow scars may be recolonised from adjacent plants, while recovery of larger denuded areas may depend on the seed bank or external seed sources and can take decades in isolated or fragmented systems. Physical abrasion may remove shoots and reduce productivity, while deeper penetration can damage or remove rhizomes and roots. MarLIN classified *Z. marina* as having Low resistance and Medium resilience, resulting in Medium sensitivity to surface abrasion and None resistance, Low Resilience and High Sensitivity to subsurface penetration. Recovery depended on the extent and configuration of the disturbed area, sediment stability and the continued presence of viable plants or seeds (Manley et al., 2015; Paulo et al., 2019).

Mytilus edulis has high fecundity and a planktonic larval stage that provides the potential for dispersal and recolonisation. However, recruitment is spatially and temporally variable, while mortality among larvae and recently settled mussels is high. Recovery of disturbed beds therefore depends on larval supply, suitable attachment substrate, bed stability, hydrographic conditions and the absence of continuing disturbance. Strong recruitment may allow relatively rapid re-establishment, but large or repeatedly disturbed gaps may remain for several years or expand through wave action, predation and weakened byssal attachment. MarLIN classified *M. edulis* beds on littoral sediments as having Low resistance, Medium resilience and Medium sensitivity to surface abrasion, subsurface penetration and incidental removal. These pressures may remove mussels, weaken their attachment and alter the structure and associated fauna of the bed (Seed & Suchanek, 1992; Moyse et al., 2026).

The *Sabellaria* dominated community complex in Tralee Bay was formed by *Sabellaria alveolata* reef on Derrymore Strand. The reef occurred as hummocks standing above the substrate or interspersed with boulder reef. Reef cover ranged from approximately 20% to 80% towards Derrymore Bridge and from approximately 10% to 15% towards Bunawonder. The applicable Conservation Objectives required the avoidance of mortality to living *S. alveolata* and significant disturbance to community quality (NPWS, 2014d). Small areas of surface damage may be repaired rapidly through tube building by surviving worms, with trawl impressions reported to disappear within four to five days. More extensive damage may remove reef sections, be enlarged by wave action and require larval recolonisation. Recovery may then take months to years and, in isolated populations, potentially decades. MarLIN classified resistance to surface abrasion as Medium and resilience as High,

resulting in Low sensitivity. Resistance to subsurface penetration was classified as Low and resilience as Medium, resulting in Medium sensitivity. Evidence relating directly to *Sabellaria alveolata* was considered alongside the wider literature on *S. spinulosa*. Evidence derived from *S. spinulosa* or from different reef forms was treated as supporting evidence only, because sensitivity and recovery may differ between species and reef morphology (Gibb et al., 2014; Vorberg, 2000; Plicanti et al., 2016).

Commercial oyster dredging could interact with these communities through direct abrasion, subsurface disturbance, incidental removal and changes in sediment suspension or deposition. The ecological response would depend on the location, spatial extent, intensity and recurrence of dredging, together with the recovery characteristics of the receptor. Where site-specific management measures prevented direct gear contact with mapped *Zostera*, *Mytilus* and *Sabellaria* communities in Tralee Bay and *Serpula* and *Zostera* dominated communities in Blacksod Bay, and limited cumulative seabed disturbance, effects on these communities were not expected to be persistent or significant at the scale of the bay or SAC.

Within the site-specific assessments, the potential for oyster dredging to interact with these sensitive communities was evaluated using the timing and duration of the fishing season, the applicable fishery management plans and management measures, and the spatial relationship between the licensed dredging areas and the mapped distributions of the communities. Spatial overlap was determined using the maps and associated tables presented in **section 2**. Where a licensed dredging area overlapped a mapped sensitive community, this was treated as evidence of potential exposure and not as evidence that dredging had occurred within the community or caused an ecological effect. The potential significance and persistence of an interaction were assessed by considering the extent of the mapped overlap alongside the frequency and duration of fishing, the restrictions imposed through the applicable management arrangements, the sensitivity and recovery characteristics of the receptor and the relevant Conservation Objective attributes and targets.

3.1.4.2. Blacksod Bay

Within the Mullet/Blacksod Bay Complex SAC, the Conservation Objectives identified the *Zostera* dominated community, maërl dominated community and *Serpula vermicularis* dominated community complex as constituent communities of Large shallow inlets and bays [1160]. The *Serpula vermicularis* dominated community complex and other reef communities were also constituent communities of Reefs [1170]. The Conservation Objectives required the extent and quality of the *Zostera*, maërl and *Serpula vermicularis* communities to be maintained, subject to natural processes, and required the other constituent communities to be conserved in natural condition. The source of the potential effect was licensed commercial native oyster dredging. The pathways comprised direct contact between the dredge and the seabed and the resuspension

and subsequent deposition of disturbed sediment. The receptors were the sensitive constituent communities that could be reached through these pathways.

The licensed dredging area extended across approximately 9.500 km². The maps and spatial overlap tables presented in **section 2.1.1** indicated that the licensed area overlapped approximately 1.13% of the Intertidal reef community complex and 0.59% of the Sheltered subtidal reef community complex. No mapped overlap with the maërl dominated, *Serpula vermicularis* or *Zostera* dominated communities, was identified. These spatial relationships represented the maximum mapped areas within which direct interaction could occur. Licensed spatial overlap was treated as evidence of potential exposure and did not demonstrate that dredging occurred throughout the overlapping areas or that the communities had been affected.

Direct contact with the Intertidal reef and Sheltered subtidal reef community complexes could similarly damage or displace attached fauna and disturb reef structure. The mapped overlaps accounted for a limited proportion of the licensed area and did not represent the actual dredging footprint. The fishery was directed towards the native oyster grounds rather than uniformly across the full licensed polygon. Although local effects could not be excluded where dredging occurred within an overlapping reef area, the available spatial information did not indicate disturbance across the wider extent of the reef communities.

No direct contact pathway was identified for the maërl dominated community because no mapped overlap occurred. An effect would require sediment disturbed within the licensed area to be transported and deposited over the mapped maërl habitat.

The magnitude and frequency of potential interaction are mainly limited by the low annual fishing effort. Fishing occurs mainly during February and March, with a small number of fishing days also occurring between September and December. Annual fishing effort is usually no more than eight fishing days, although a few additional fishing days may occur in some years. Direct seabed contact and associated sediment disturbance are therefore intermittent rather than continuous or ongoing. Although local interaction with sensitive communities cannot be excluded, the limited mapped overlap and low number of fishing days substantially reduce the spatial extent, frequency and duration of potential effects.

Assessment Conclusion

Potential interaction with other sensitive communities arising from native oyster dredging in Blacksod Bay is intermittent and is not continuous or ongoing. Although local damage could occur if dredging directly contacted reef communities, the limited mapped overlap and low annual fishing effort substantially limit the opportunity for repeated or widespread disturbance. The small number of fishing days occurring between September and December does not materially change the frequency or duration of the pressure. No direct

contact pathway was identified for the maërl dominated, *Serpula vermicularis* dominated and *Zostera* dominated communities, and the available evidence did not indicate an indirect sediment pathway of sufficient magnitude or duration to affect those communities. Potential effects on these sensitive communities are therefore assessed as **not significant** and **not persistent**.

3.1.4.3. Tralee Bay

Within Tralee Bay and Magharees Peninsula, West to Cloghane SAC, the Conservation Objectives identify the *Zostera*-dominated community complex, *Mytilus*-dominated community and *Sabellaria*-dominated community complex as sensitive constituent communities of one or more Annex I habitats. Intertidal reef, Subtidal reef and *Laminaria*-dominated reef community complexes are constituent communities of the Reefs [1170] Qualifying Interest. The Conservation Objectives require the extent and quality of the keystone communities to be maintained and the reef community complexes to be conserved in natural condition, subject to natural processes.

The proposed dredge areas overlap only a limited proportion of the mapped extent of the reef communities at SAC scale. In Inner Tralee Bay, approximately 12.45 ha of the Intertidal reef community complex occurs within the proposed dredge boundary. NPWS estimates the total mapped extent of this community within the Reefs [1170] habitat at approximately 221 ha. The proposed dredge boundary therefore overlaps approximately 5.6% of the mapped Intertidal reef community complex within the SAC. In Outer Tralee Bay, approximately 105.36 ha of the Subtidal reef community complex occurs within the proposed dredge area, with a further approximately 3.4 ha occurring within the Inner Tralee Bay proposed dredge area. Combined, approximately 109.01 ha of Subtidal reef lies within the proposed dredge areas, equivalent to approximately 4.4% of the 2,499 ha mapped within the SAC. No overlap with the *Laminaria*-dominated reef community complex was identified. NPWS also notes that the mapped extent of reef communities is likely to underestimate their actual area because areas of sheer and steeply sloping rock are not fully represented (NPWS, 2014).

These percentages represent conservative maximum spatial overlaps rather than the area that would necessarily be dredged. The proposed dredging areas define where fishing may occur and do not imply complete dredging coverage of all seabed within those boundaries. Even if the full mapped reef overlap were conservatively treated as potentially disturbed, the maximum spatial exposure would therefore remain approximately 5.6% of the Intertidal reef community and 4.4% of the Subtidal reef community. Both are substantially below the approximate 15% area identified by NPWS for significant continuous or ongoing disturbance of constituent community types.

Direct dredge contact could nevertheless cause localised abrasion, displacement or mortality of reef-associated organisms where fishing occurs over these communities. However, the spatial scale of this potential disturbance is small relative to the wider distribution of the communities throughout the SAC. The Intertidal reef community is recorded extensively from the Magharees Peninsula through Tralee Bay and around its northern shore, while the Subtidal reef community occurs extensively from Derrymore westwards, through the central bay and around the Magharees Peninsula. Dredging within the proposed areas would therefore not result in loss of these community types from Tralee Bay, contraction of their overall distribution within the SAC, or a change in the character of Reefs [1170] at the scale of the SAC.

The interaction with the *Zostera*-dominated community complex is similarly spatially limited. Approximately 11.07 ha of mapped *Zostera* occurs within the Outer Tralee Bay dredge boundary, equivalent to approximately 3.2% of the 350 ha estimated by NPWS within Large shallow inlets and bays [1160]. NPWS identifies *Zostera* as a keystone community and requires significant anthropogenic disturbance to its extent to be avoided (NPWS, 2014). Direct dredging could damage shoots and rhizomes where fishing occurs within the mapped meadow. However, the limited spatial overlap and the seasonal nature of the fishery reduce the potential magnitude and persistence of this effect. Commercial oyster dredging ceases between May and August, substantially avoiding the main summer growth period. Breen et al. (2024) experimentally dredged a historically fished Irish *Zostera marina* meadow in early spring and found no effect on subsequent rhizome weight, shoot density or blade density during the growing season. The authors considered restriction of fishing to winter or early spring, before the main seagrass growing season, to be a potentially important factor allowing traditional fishing activity and seagrass to coexist (Breen et al., 2024).

The *Mytilus*-dominated community has only negligible spatial overlap with the proposed Inner Tralee Bay dredge area. Approximately 0.109 ha occurs within the proposed boundary compared with an estimated 12 ha within the Reefs [1170] habitat, equivalent to approximately 0.9% of its mapped extent. NPWS identifies *Mytilus* as a keystone community and requires significant disturbance to its extent and quality to be avoided (NPWS, 2014). Given the very small area of potential interaction, any direct effects would be localised and would not alter the distribution or ecological function of the community within the SAC. No mapped overlap occurs with the *Sabellaria*-dominated community complex.

The fishery is also temporally discontinuous. Oyster dredging occurs seasonally between September and April and ceases between May and August. The pressure therefore does not represent continuous year-round disturbance, and the annual four-month closure provides a period without dredging disturbance. NPWS explicitly recognises that intermittent or episodic activities which do not represent continuous or ongoing disturbance may be assessed contextually with regard to their scale and the resilience of the receiving community.

Assessment Conclusion

Potential interactions between native oyster dredging and other sensitive benthic communities in Tralee Bay are assessed as **not significant** and **not persistent**. The proposed dredge areas in Inner Tralee Bay and Outer Tralee Bay overlap approximately 5.6% of the mapped Intertidal reef community, 4.4% of the Subtidal reef community, 3.2% of the *Zostera*-dominated community and 0.9% of the *Mytilus*-dominated community, with no mapped overlap with the *Sabellaria*-dominated community. These represent conservative maximum spatial overlaps and would not reduce the wider distribution or ecological function of these communities within the SAC. The seasonal cessation of dredging between May and August further limits persistence, including by substantially avoiding the main summer growth period for *Zostera*.

3.1.4.4. Lough Swilly

Within Lough Swilly SAC, the Conservation Objectives identified Estuaries [1130] and required the Fine sand community complex, Intertidal mixed sediment with polychaetes, Subtidal mixed sediment with polychaetes and bivalves, Muddy fine sand with *Thyasira flexuosa*, Mud community complex and *Ostrea edulis* dominated community to be conserved in natural condition. The Conservation Objectives and marine habitats supporting document did not identify *Zostera*, *Sabellaria* or *Mytilus* dominated communities as separate constituent communities of Estuaries [1130] (NPWS, 2011a; NPWS, 2011c). The source of the potential effect was licensed commercial native oyster dredging. The pathways considered were direct contact between the dredge and the seabed and sediment resuspension and deposition.

The licensed dredging area overlapped each of the mapped constituent communities of Estuaries [1130]. However, this represented the area within which dredging was authorised and did not demonstrate that commercial fishing occurred uniformly across the licensed area. The fishery was directed towards established native oyster concentrations within the *Ostrea edulis* dominated community. Potential disturbance of the adjoining sedimentary communities would arise through the impact mechanisms already assessed and did not represent a separate interaction with another sensitive community.

The Lough Swilly native oyster fishing season operates from 1st of September to 30th of April, with no commercial oyster dredging between 1st of May and 31st of August. Direct seabed contact and any associated interaction with benthic communities are therefore seasonal rather than continuous or ongoing.

No additional source, pathway and receptor linkage was identified between native oyster dredging and a separately mapped sensitive benthic community in Lough Swilly. Potential effects on the *Ostrea edulis* dominated community and the other constituent sedimentary communities were not disregarded but were addressed under the relevant preceding assessments. The available information did not indicate an additional

interaction capable of causing continuous or ongoing disturbance or compromising the natural condition of a separately identified sensitive community.

Assessment Conclusion

No separately mapped *Zostera*, *Mytilus*, *Sabellaria* or reef dominated community was identified within Lough Swilly SAC. Potential effects on the *Ostrea edulis* dominated community and associated sedimentary communities were assessed under the preceding impact pathways and did not require separate assessment under this mechanism. The annual four month cessation interrupts the pressure and provides a period during which disturbed habitats and communities can recover without further dredging. The potential interaction is therefore assessed as not persistent.

Potential interaction with other sensitive communities arising from native oyster dredging in Lough Swilly is therefore assessed as **not persistent** and **not significant** in relation to Estuaries [1130].

4. Evaluation Against NPWS Guidance and SAC Integrity

The findings of the impact assessment were evaluated against the site-specific Conservation Objectives and supporting documentation for the Mullet/Blacksod Bay Complex SAC, Tralee Bay and Magharees Peninsula, West to Cloghane SAC and Lough Swilly SAC. For relevant constituent communities, NPWS states that “significant continuous or ongoing disturbance of communities should not exceed an approximate area of 15% of the interpolated area of each community type, at which point an inter-Departmental management review is recommended prior to further licensing of such activities”. NPWS guidance further provides that activities which cause significant disturbance but do not necessarily represent a continuous or ongoing source of disturbance over time and space may be assessed in a context-specific manner, having regard to the nature and scale of the activity, the resilience of the receiving habitat and other activities within the designated site (NPWS, 2011c; NPWS, 2014c; NPWS, 2014d).

The 15% threshold relates specifically to significant continuous or ongoing disturbance and not to physical contact with, or disturbance of, a community. Spatially resolved commercial fishing effort, tow frequency and annual swept-area estimates were not available for the three fisheries and the exact proportion of each oyster bed contacted by dredging could therefore not be quantified. However, commercial dredging is directed towards established oyster grounds and consultation with the Marine Institute indicated that nearly all of the commercially fished oyster beds are likely to have been subject to dredging disturbance. The spatial extent of disturbance within the oyster beds is therefore considered likely to be substantially greater than 15% and closer to the full extent of the commercially fished beds than to the 15% benchmark. The assessment against the NPWS target consequently depends mainly on whether the disturbance identified in Section 3 is significant and continuous or ongoing.

4.1. Blacksod Bay

The Conservation Objectives for the Mullet/Blacksod Bay Complex SAC do not identify an *Ostrea edulis* dominated community and native oyster is not a Qualifying Interest or subject to a separate population target. Native oyster is, however, identified as a notable species within the SAC and *Ostrea edulis* are present in low abundance within the Sand with *Angulus tenuis* and *Pygospio elegans* community complex. Effects on native oysters are therefore relevant where they contribute to, or indicate, changes in the structure and function of constituent communities required to be conserved in natural condition.

The exact proportion of the Blacksod Bay oyster bed contacted by commercial dredging is uncertain, but the targeted nature of the fishery indicates that most of the commercially fished bed is likely to be subject to dredging over time. The spatial extent of disturbance of the oyster bed is therefore likely well above 15%. This

should not, however, be interpreted as demonstrating disturbance of more than 15% of the wider interpolated area of the sedimentary community types within which the oysters occur, because the native oyster bed is not mapped as a separate constituent community in the Conservation Objectives. The oyster beds in Blacksod bay are best presented in Marine Institute survey findings from Tully and Clarke (2012) seen in Figure 2.18.

Section 3 concluded that physical disturbance in Blacksod Bay is intermittent, is not continuous or ongoing and is not significant.. Oyster removal is similarly intermittent and its population-level effect was assessed as not persistent and not significant in relation to Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160] and Reefs [1170]. The spatial extent of disturbance of the oyster bed may therefore substantially exceed 15%, but the disturbance does not meet the requirement of being both significant and continuous or ongoing. The approximately 15% management-review threshold is therefore not triggered by native oyster dredging in Blacksod Bay.

4.2. Tralee Bay

The *Ostrea edulis* dominated community is a constituent community of both Mudflats and sandflats not covered by seawater at low tide [1140] and Large shallow inlets and bays [1160] within Tralee Bay and Magharees Peninsula, West to Cloghane SAC. The applicable Conservation Objectives require the *Ostrea edulis* dominated community to be conserved in natural condition (NPWS, 2014d; NPWS, 2026).

Commercial dredging is directed towards the established oyster grounds in Inner and Outer Tralee Bay. Although the absence of spatially resolved commercial fishing-effort data prevents calculation of the exact annual swept area, most of the commercially fished *Ostrea edulis* dominated community is likely to be subject to dredging disturbance over time. The proportion disturbed should therefore be considered well above 15% and closer to the full extent of the commercially fished oyster grounds than to the 15% benchmark.

For Mudflats and sandflats not covered by seawater at low tide [1140], **Section 3** concluded that physical disturbance is seasonal rather than continuous or ongoing and is not causing significant deterioration of the *Ostrea edulis* dominated community. Oyster removal is also seasonal and was assessed as not persistent and not significant, with the long-term stock record demonstrating continued recruitment and replenishment under the existing management regime. Sediment resuspension and smothering were similarly assessed as not persistent and not significant. Consequently, although disturbance is likely to occur across substantially more than 15% of the oyster bed, significant continuous or ongoing disturbance was not identified and the approximately 15% management-review threshold is not triggered for Mudflats and sandflats not covered by seawater at low tide [1140].

For Large shallow inlets and bays [1160], the same *Ostrea edulis* dominated community and dredging pressure are relevant. Section 3 concluded that physical disturbance is seasonal and not significant, while oyster removal and its consequent effects on spawning stock and recruitment are not persistent and not significant under the existing management regime. The annual cessation of dredging between May and August also interrupts direct physical disturbance and sediment disturbance. Consequently, despite disturbance being likely across substantially more than 15% of the commercially fished oyster grounds, the disturbance was not assessed as both significant and continuous or ongoing. The approximately 15% management-review threshold is therefore not triggered for Large shallow inlets and bays [1160].

4.3. Lough Swilly

Within Lough Swilly SAC, the *Ostrea edulis* dominated community is a constituent community of Estuaries [1130]. The Conservation Objective requires the Fine sand community complex, Intertidal mixed sediment with polychaetes, Subtidal mixed sediment with polychaetes and bivalves, Muddy fine sand with *Thyasira flexuosa*, Mud community complex and *Ostrea edulis* dominated community to be conserved in natural condition. The applicable target states that significant continuous or ongoing disturbance should not exceed approximately 15% of the interpolated area of each community type (NPWS, 2011a; NPWS, 2011c).

Commercial dredging is directed towards the established native oyster grounds. The exact proportion of the *Ostrea edulis* dominated community contacted in any individual fishing season cannot be calculated from the available information because spatially resolved commercial dredging effort is unavailable. Nevertheless, most of the commercially fished oyster bed is likely to be subject to dredging disturbance over time and the spatial extent of disturbance is therefore considered likely to be substantially greater than 15% and closer to the full extent of the commercially fished bed.

Section 3 concluded that direct physical disturbance is seasonal, is not continuous or ongoing and is not significant in relation to Estuaries [1130]. Sediment resuspension and smothering were similarly assessed as not persistent and not significant. Oyster removal, however, was assessed differently. Although dredging itself ceases annually, the population-level effect of removal may persist between successive fishing seasons where recruitment and growth do not replace harvested oysters. In the absence of a stock-linked TAC, quantified annual exploitation rate or evidence of consistently strong recruitment, Section 3 concluded that current removals could not be demonstrated to be compatible with maintaining the *Ostrea edulis* dominated community in natural condition. Oyster removal and its consequent effects on spawning stock and recruitment were therefore assessed as potentially persistent and significant in relation to Estuaries [1130].

The spatial extent of disturbance of the oyster bed is likely substantially greater than 15%, while a significant effect that may persist between successive fishing seasons cannot be excluded. Consequently, the

requirement that significant continuous or ongoing disturbance should not exceed approximately 15% of the *Ostrea edulis* dominated community cannot be demonstrated to be met. On a precautionary basis, the approximately 15% management-review threshold is therefore considered to be triggered for Estuaries [1130] in Lough Swilly. In accordance with the Conservation Objective supporting documentation, an inter-Departmental management review is recommended prior to further licensing of such activities.

4.4. Assessment conclusion

The available information indicates that commercial native oyster dredging is likely to disturb substantially more than 15% of the commercially fished native oyster beds in all three fisheries, although the exact proportion cannot be quantified and is likely closer to the full extent of the actively fished beds than to the 15% benchmark. Spatial extent of disturbance is therefore not the main factor distinguishing the three fisheries.

In Blacksod Bay, disturbance is intermittent and was assessed as not significant and not persistent. In Tralee Bay, disturbance of the *Ostrea edulis*-dominated community was assessed as seasonal rather than continuous or ongoing and as not significant or persistent for both Mudflats and sandflats not covered by seawater at low tide [1140] and Large shallow inlets and bays [1160]. Potential interactions with other sensitive benthic communities were also assessed as not significant and not persistent, based on their limited spatial overlap with the proposed dredge areas, maintenance of their wider distribution and ecological function within the SAC, and the seasonal cessation of dredging between May and August. The approximately 15% management-review threshold is therefore not triggered in either fishery. In Lough Swilly, however, oyster removal and its consequent effects on spawning stock and recruitment were assessed as potentially significant and persistent between successive fishing seasons. As these effects occur within an *Ostrea edulis* dominated community likely subject to dredging disturbance over an area substantially greater than 15%, the approximately 15% management-review threshold is triggered for Estuaries [1130].

5. Potential fisheries management measures

The assessment concluded that the approximately 15% threshold for significant continuous or ongoing disturbance was not triggered by native oyster dredging in Blacksod Bay or Tralee Bay. In Lough Swilly, the threshold was considered to be triggered in relation to the *Ostrea edulis* dominated community within Estuaries [1130]. This conclusion arose mainly from the harvest of native oysters and the potential for effects on spawning stock biomass and recruitment to persist between successive fishing seasons. The native oyster population is also subject to additional pressures that may reduce its capacity to recover from current fishing mortality, including infection by *Bonamia ostreae*, competition with the naturalised Pacific oyster *Magallana gigas*, competition with the non-native American slipper limpet *Crepidula fornicata*, and comparatively limited fisheries management controls compared to Tralee Bay and Blacksod Bay. Lough Swilly currently operates as a public fishery and no stock-linked Total Allowable Catch (TAC) or equivalent annual harvest limit for native oyster is in place.

Fisheries management measures are therefore required to reduce fishing mortality and improve the capacity of the Lough Swilly native oyster population to maintain and replenish its spawning stock. The measures below are presented as potential components of an updated fisheries management framework and should be developed in consultation with local fishers and relevant public bodies such as IFI, NPWS, the marine institute and potentially others. Their implementation should be adaptive and informed by annual stock assessment rather than fixed thresholds transferred from previous management plans.

5.1. Total Allowable Catch

Establishment of a stock-linked TAC could be the main management measure for the Lough Swilly native oyster fishery. The absence of a mechanism linking annual harvest to available native oyster biomass was a key factor in the assessment that fishing mortality may result in significant and persistent effects on the *Ostrea edulis* dominated community.

The TAC should be set annually using the most recent Marine Institute stock assessment and should take account of total biomass, harvestable biomass, spawning stock biomass, size structure, recent recruitment and uncertainty associated with the biomass estimates. The TAC should be precautionary where biomass is low, recruitment is weak or uncertainty is high. Where the available stock assessment does not demonstrate that the proposed harvest can be sustained while maintaining adequate spawning stock biomass, the TAC should be reduced accordingly or the fishery should remain closed.

The TAC should be developed in consultation with the Lough Swilly Wild Oyster Society and other local fishers, the Marine Institute and IFI. Experience from other managed native oyster fisheries should be used to develop a practical harvest control rule linking annual scientific advice to the quantity that may be harvested. Tully and Clarke (2012) identified Inner Tralee Bay as an example where annual survey information was used to inform TACs, while cooperative management arrangements elsewhere demonstrate how local fishing knowledge can be incorporated with scientific stock assessment.

The previous Lough Swilly Fishery Natura Plan proposed limiting the exploitation rate to 33% of pre-fishery spawning stock biomass. This provides useful evidence that a stock-linked exploitation limit has previously been considered feasible for the fishery; however, the proposed 33% value was developed from stock information available in 2011–2012 and should not be adopted as a current threshold without reassessment using current stock condition and Marine Institute advice.

Catch and harvest should be recorded throughout the fishing season so that the TAC can be monitored and enforced in real time. Agreed landing points, vessel-specific catch records or equivalent reporting arrangements could be used to provide a reliable record of harvest. The native oyster fishery should close when the TAC is reached.

The statutory Minimum Landing Size of 76 mm should be retained. This protects oysters through several years of growth before recruitment to the fishery but does not, by itself, control the proportion of larger oysters harvested each year. The MLS should therefore operate alongside the stock-linked TAC rather than as the main control on fishing mortality.

5.2. Extension of the seasonal closure

The existing seasonal closure between May and August provides an annual period without commercial native oyster dredging during the main reproductive period. An extension of the seasonal closure could be considered to reduce annual fishing effort and provide additional protection to spawning stock, recently settled oysters and juveniles. This could be achieved through a later opening date, an earlier closing date, or both. The precise dates should be agreed through the annual management process with reference to native oyster biology, stock condition, Marine Institute advice and consultation with fishers.

The previous Fishery Natura Plan proposed shortening the fishing season by delaying opening in September and closing at the end of March. These dates should not be adopted automatically but demonstrate that a shorter fishing season has previously been considered practicable within Lough Swilly.

Seasonal restriction should complement, rather than replace, the TAC. A shorter fishing season would provide limited control of fishing mortality if the same total harvest were taken over fewer fishing days.

5.3. Participation and effort controls

Twenty-four oyster dredge licences were recorded for Lough Swilly in 2026, although the number of licence holders who actively participated in the fishery and their fishing effort could not be quantified. Fishery participation should therefore be reviewed as part of the management response.

A cap or reduction in the number of fishers permitted to participate in the Lough Swilly native oyster fishery could provide a practical means of controlling fishing participation and effort. A precautionary first step could include preventing any increase in fishery participation while the stock-linked management framework is established, followed by review of the appropriate level of participation against stock condition and the agreed TAC.

Fishery participation alone would not provide adequate control because fishing effort can vary substantially among fishers and vessels. The management framework should therefore also provide for direct fishing effort controls where required. These could include limits on fishing days, fishing hours, dredge numbers or other measures directly related to the amount of fishing undertaken. Such controls could be adjusted where annual stock assessment indicates weak recruitment, low spawning stock biomass or deterioration in other stock indicators.

Any participation or fishing effort controls should apply consistently across the fishery. This is particularly important because Lough Swilly is a public fishery and the Lough Swilly Wild Oyster Society does not currently have legal authority to manage participation or harvest by all licensed fishers. The earlier Fishery Natura Plan similarly identified the absence of mechanisms to control vessel numbers, fishing effort and annual harvest as a constraint on effective fisheries management.

5.4. Spatial closures

Spatial closures could be used to retain areas of native oyster spawning stock that are protected from commercial harvest. Permanent or multi-annual closures could protect comparatively high densities of mature *Ostrea edulis*, maintain local spawning stock density and provide a source of larvae to surrounding oyster grounds.

The location and extent of protected areas should be determined from current Marine Institute survey information rather than the boundaries proposed in the 2012–2017 Fishery Natura Plan. Priority should be given to areas supporting relatively high densities of mature native oysters, consistent recruitment or spat settlement and suitable shell habitat.

Temporary closures should also be available as an adaptive management measure. Areas containing a high proportion of juvenile oysters, showing strong recent recruitment or declining to low native oyster density could be closed to fishing until subsequent surveys demonstrate adequate recovery. The earlier Fishery Natura Plan proposed both a spawning reserve and closures based on oyster density and juvenile representation; these approaches remain relevant in principle, although the specific areas and numerical thresholds require reassessment using current survey data.

Rotational harvesting could also be considered where oyster grounds can be divided into biologically meaningful management areas. Reopening should be based on demonstrated recovery of native oyster biomass, size structure and recruitment rather than the passage of a fixed period alone.

5.5. Control of non-native species, disease monitoring and biosecurity

Management of fishing mortality could be accompanied by measures addressing the additional biological pressures acting on the native oyster population.

Naturalised Pacific oyster *Magallana gigas* represents a substantial pressure in Lough Swilly. Recent Marine Institute surveys demonstrated that Pacific oyster biomass remained considerably greater than native oyster biomass, while historical surveys showed Pacific oyster occupying areas of former native oyster habitat. Control of the naturalised population should therefore form part of the wider fisheries management framework.

A spatially targeted Pacific oyster removal programme could be developed for areas where *M. gigas* is abundant within native oyster grounds. However, fishing for Pacific oyster would itself create seabed disturbance and could result in native oyster bycatch. The fishing method, season, spatial extent and permitted fishing effort should therefore be defined in advance, and catch and harvest of native and Pacific oysters should be recorded separately. Pacific oysters caught during authorised native oyster dredging could also be retained rather than returned to the bed where this is legally and practically feasible. The earlier Fishery Natura Plan proposed a targeted Pacific oyster control fishery and provides a useful starting point for development of an updated approach, but its spatial boundaries require revision using current distribution data.

The current distribution and abundance of American slipper limpet *Crepidula fornicata* within native oyster grounds should also be established. Where substantial overlap occurs and removal is technically and environmentally feasible, targeted control could be investigated. Any such measure would need to demonstrate that the ecological benefit of removal outweighs the additional seabed disturbance associated with the control method.

Bonamia ostreae cannot be managed through conventional fisheries controls in the same way as fishing mortality or non-native species abundance. Disease surveillance should nevertheless form part of the fisheries management framework because disease-related mortality affects the capacity of the stock to sustain fishing mortality. Monitoring should establish temporal and spatial patterns in prevalence where practicable and should inform decisions on oyster movement and any restoration measures.

Biosecurity measures should minimise the risk of spreading disease or additional non-native species. Movement of living oysters, shell or fishing equipment between areas should therefore be subject to appropriate cleaning, disinfection, disease-screening and statutory fish-health requirements.

5.6. Stock, catch and fishing effort monitoring and adaptive management

Annual pre-fishery stock surveys carried out by the Marine Institute should provide the main scientific evidence for management of the fishery. Monitoring should continue to estimate native oyster biomass, density and size structure. The spatial distribution and biomass of Pacific oyster should also continue to be assessed, together with other relevant pressures where practicable (e.g. *Bonamia*).

These biological data should be supported by improved fishery-dependent data. At a minimum, annual records should include fishery participation, fishing effort and harvest (landings data for each oyster species). Spatial information on fishing effort would provide additional evidence for assessing the distribution of fishing pressure and the effectiveness of spatial closures.

Management responses should be agreed in advance for situations where stock indicators deteriorate. These could include reduction of the TAC, extension of the seasonal closure, temporary closure of individual oyster grounds, reductions in fishery participation or fishing effort, or closure of the fishery where necessary. Conversely, restrictions could be reviewed where repeated surveys demonstrate improved biomass, recruitment and spawning stock condition.

The management framework should therefore operate adaptively, with annual stock assessment informing any proposed TAC, fishing season, participation, fishing effort and spatial management measures applied during the subsequent fishing season. The earlier Lough Swilly plan similarly identified annual monitoring and review as important because spawning, settlement, growth and survival of native oysters vary substantially among years.

5.7. Restoration and recruitment enhancement

Active restoration should be considered only after practicable controls on fishing mortality, protection of spawning stock and management of non-native species have been implemented. The native oyster population

remains present within Lough Swilly and the first management response should therefore be to reduce pressures on the existing stock and support natural recruitment rather than use restoration to compensate for continued fishing mortality.

Restoration may nevertheless be appropriate where monitoring identifies a specific constraint on natural recovery. For example, cultch addition could be investigated where insufficient clean shell substrate is demonstrated to limit spat settlement. Small-scale trials using clean shell substrate and untreated control areas could be used to determine whether cultching increases settlement and survival before any larger intervention is considered.

Translocation of mature oysters to increase local broodstock density has also previously been proposed for Lough Swilly. However, the presence of *Bonamia ostreae* and non-native species creates important biosecurity constraints on movement of live oysters. Any translocation would therefore require a clear ecological justification, appropriate disease screening and agreement with the relevant fish-health and regulatory authorities.

Restoration should not be used as an alternative to controlling fishing mortality. Where the existing native oyster stock retains the capacity for natural recruitment, management of harvest, maintenance of spawning stock biomass and protection of suitable settlement habitat are likely to provide more practical and direct fisheries management measures.

5.8. Updated Lough Swilly Native Oyster Fishery Management Plan

An updated Native Oyster Fishery Management Plan should be prepared for Lough Swilly to provide an agreed framework through which the measures identified above can be implemented, monitored and reviewed. The Fishery Natura Plan for Native Oysters in Lough Swilly 2012–2017 provides a useful foundation because it previously identified many of the same management issues, including the need to control annual harvest, protect spawning stock, manage Pacific oyster, monitor *Bonamia*, improve fishery-dependent data and establish an effective governance structure (Lough Swilly Wild Oyster Society Limited, 2012). However, the plan is now outdated and should not simply be re-adopted. It should be revised using the substantially improved Marine Institute stock information now available and the findings of the present impact assessment.

The updated plan should be developed collectively with the Lough Swilly Wild Oyster Society, other licensed fishers, IFI, the Marine Institute, NPWS, BIM, DAFM and other relevant stakeholders. Experience gained from management of the Tralee Bay and Blacksod Bay native oyster fisheries should also be considered, particularly the use of cooperative management, stock-linked harvest controls, seasonal closures and spatial closures.

At a minimum, the updated plan should establish the annual process for setting the TAC; the fishing season; fishery participation and fishing effort controls; spatial protection of spawning stock and recruitment areas; non-native species management; disease surveillance and biosecurity; catch, harvest and fishing effort reporting; stock monitoring; compliance and enforcement; and predefined management responses to deterioration in stock condition.

The governance arrangements should also identify how agreed management measures will be applied across the public fishery. Because participation in the Lough Swilly Wild Oyster Society does not provide authority over all licensed fishers, measures agreed through the management plan should be given effect, where required, through IFI licence conditions or another appropriate statutory mechanism.

The plan should be reviewed annually following the Marine Institute stock assessment. This would allow management to respond to changes in native oyster biomass, recruitment, disease, non-native species, fishery participation, fishing effort and harvest, and would provide a transparent mechanism for demonstrating that future native oyster dredging is managed consistently with the requirement to conserve the *Ostrea edulis* dominated community in natural condition within Estuaries [1130].

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