Inch Cape
OFFSHORE LIMITED

Inch Cape Offshore Wind Farm

Project Environmental Monitoring Programme – Generating Station (PEMP - GS)

November 2025

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Inch Cape Offshore Wind Farm Project Environmental Monitoring Programme – Generating Station (PEMP - GS)

Inch Cape Acceptance

Originator	Reviewed by	Reviewed by	Accepted by
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Consent Plan Overview

Purpose and Objectives of the Plan

This Project Environmental Monitoring Programme (PEMP) has been prepared to address the specific requirements of the relevant conditions attached to the following consent:

- Section 36 Consent (as varied), for the construction and operation of the Inch Cape Offshore Wind Farm Electricity Generating Station (dated 14th June 2023), hereafter referred to as the 'S36 Consent'
- Generating Station (GS) Marine Licence (as varied), Licence No. MS-00010140 granted on 14th June 2023 (formerly 06781/19/0), for construction and operation of an offshore energy generating station hereafter referred to as the 'GS Marine Licence'

The Consent has been issued to Inch Cape Offshore Limited (hereafter referred to as 'ICOL'), for the construction, operation and decommissioning of the Inch Cape Offshore Wind Farm (OWF) Generating Station, which associated with the Offshore Transmission Infrastructure (OfTI), are collectively referred to as 'the Development'.

A separate Marine Licence was granted for the operation and construction of the Offshore Transmission Infrastructure (OfTI), Licence number MS-00010593 granted on 9th November 2023 (formerly MS-00010314 and 06782/19/0), hereafter referred as the 'OfTI Marine Licence', which is not relevant for the purposes of this document. A separate PEMP (IC02-INT-EC-OFC-017-INC-PLA-001) was produced for the OfTI, to discharge consent conditions relating to the OfTI Marine Licence.

The overall aim of the PEMP-GS is to ensure appropriate and effective monitoring of the impacts of the Development will be undertaken. The PEMP-GS sets out the measures by which the ICOL must monitor the environmental impacts of the Development, where this is deemed necessary by the Licensing Authority, throughout the lifespan of the works, including pre-construction, construction, operational and decommissioning phases. All relevant Contractors involved in the Development are required to take cognisance of the requirements of this document when carrying out their respective scopes.

The PEMP-GS is a live document that will be reviewed regularly and updated as required. Information within this document is accurate at the time of submission, but it is recognised that amendments or updates may be required to reflect changes following consultation, changes to best practice, lessons learned, etc, prior to the lifespan end of the Development. The process by which this PEMP-GS will be reviewed is presented in Section 1.5.

Scope of the Plan

This document has been produced in line with the requirements of the consent conditions, industry standards, and best practices. The PEMP-GS conveys information on the following:

- Details on the environmental monitoring proposed for the GS, for the pre-construction, construction (where considered appropriate by Scottish Ministers) and, where relevant, post-construction phases of the Development on:
    - Marine mammals;
    - Ornithology;
    - Commercial Fisheries;
    - Marine and diadromous fish; and
    - Benthic ecology, scour and sedimentation;
- The objectives and the methodologies of the monitoring surveys;
- Evidence based consultation on, and approval of, monitoring approaches and survey methodologies; and
- The programme for proposed monitoring and reporting.

Plan Structure

The PEMP-GS has been structured as follows:

- Sections 1, 2 and 3 provides an introduction to the project and sets out the scope and objectives of the PEMP, linkages with other plans, the process for making updates to this document and demonstrates compliance with the relevant consent.
- Section 4 details the consultation which has taken place relating to environmental monitoring, along with the outcomes of discussions and relevant actions taken.
- Section 5 provides the specifics of the environmental monitoring proposed;
- Section 6 provides the details on the reporting process and the application of survey results; and
- Appendices including topic specific monitoring strategies for:
    - Benthic Communities, Scour and Sedimentation (Appendix A);
    - Marine and diadromous fish (Appendix B);
    - Ornithology (Appendix C), and;

- Marine Mammals (Appendix D).

Plan Audience

This PEMP-GS will be submitted for approval to the Scottish Ministers/Licensing Authority in consultation with the Forth and Tay Regional Advisory Group (FTRAG) and other relevant stakeholders. All documentation and method statements produced in relation to the Development must incorporate the requirements and comply with this PEMP-GS.

Compliance with the PEMP-GS will be monitored by ICOL's Environmental Clerk of Works (ECoW), ICOL's Consent Team, Inch Cape appointed contractors, and Marine Directorate Licencing Operations Team (MD-LOT).

Plan Locations

Copies of this PEMP-GS will be available from the following locations:

- ICOL's Project Office, Ground Floor, New Clarendon, 114-116 George Street, Edinburgh, EH2 4LH;
- ICOL's Marine Coordination Centre (MCC);
- The premises of any main contractors and subcontractors undertaking work on behalf of ICOL;
- ICOL's Environmental Clerk of Works (ECoW); and
- Aboard any vessels carrying out construction, operational and maintenance activities for the Development.

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Acronyms & Abbreviations

Acronym	Term
AIS	Automatic Identification System
CaP	Cable Plan
CEMP	Construction Environmental Management Plan
CMS	Construction Method Statement
CoP	Construction Programme
DAS	Digital Aerial Survey
DDV	Drop Down Video
ECC	Export Cable Corridor
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMF	electromagnetic fields
ES	Environmental Statement
FLO	Fisheries Liaison Officer
FMMS	Fisheries Management and Mitigation Strategy
FMS	Fisheries Management Scotland
FTCFWG	Forth and Tay Commercial Fisheries Working Group
FTRAG	Forth and Tay Regional Advisory Group
GS	Generating Station

Acronyms & Abbreviations

Acronym	Term
IAC	Inter-array cable
ICOL	Inch Cape Offshore Limited
Km	Kilometre
kV	Kilovolts
MCC	Marine Coordination Centre
MD-LOT	Marine Directorate - Licensing Operations Team
MEDIN	Marine Environmental Data and Information Network
ML	Marine Licence
MS-LOT	Marine Scotland - Licensing Operations Team (now MD-LOT)
MW	Megawatt
NIS	non-indigenous species
OEMP	Operational Environmental Management Plan
OFLO	Offshore Fisheries Liaison Officer
OfTI	Offshore Transmission Infrastructure
OfTO	Offshore Transmission Owner
OfTW	Offshore Transmission Works
OMP	Operational and Maintenance Programme
OSP	Offshore Substation Platform

Acronyms & Abbreviations

Acronym	Term
OWF	Offshore Wind Farm
PEMP	Project Environmental Monitoring Programme
PEMP- OfTI	Project Environmental Monitoring Programme – Offshore Transmission Infrastructure
PEMP-GS	Project Environmental Monitoring Programme – Generating Station
PMF	Priority Marine Features
RSPB	Royal Society for the Protection of Birds
S36	Section 36
SAC	Special Area of Conservation
ScotMER	Scottish Marine Energy Research
SFF	Scottish Fishermen's Federation
SNH	Scottish Natural Heritage (now NatureScot)
SPA	Special Protection Area
UK	United Kingdom
VM&NSP	Vessel Management and Navigational Safety Plan
VMS	Vessel Monitoring System
WDC	Whale and Dolphin Conservation
WTG	Wind Turbine Generator

Glossary

Defined Term	Meaning
Development	The Inch Cape Offshore Wind Farm (the Wind Farm) and Offshore Transmission Infrastructure (OfTI) being developed by ICOL.
Development Area	The area for the Wind Farm, within which all WTGs, IACs, interconnector cables, OSP and the initial part of the Offshore Export Cable and any other associated works must be sited. As stipulated in the Crown Estate agreement for lease.
2013 Environmental Statement (ES)	Refers to the document in which the Environmental Impact Assessment (EIA) was detailed for the Inch Cape 2014 Consent.
2018 Environmental Impact Assessment (EIA) Report (EIAR)	Refers to the document produced in 2018 to accompany the application for Consent of the Development (granted in 2019) following a material change in design.
Inch Cape Offshore Transmission Infrastructure (OfTI)	The offshore export cable and OSP, which are components of the Development, are permitted under the OfTI Marine Licence (MS-00010593), granted on 23rd August 2023 and amended on 9th November 2023. The current Marine Licence is a variation of the revised design consent granted on 17th June 2019 (No. 06782/19/0)
Inch Cape Offshore Transmission Works (OfTW)	Offshore Transmission Works (i.e., construction methods) associated with Inch Cape Offshore Wind Farm.
Inch Cape Offshore Wind Farm (OWF)/the Wind Farm	A component of the Development, comprising wind turbines and their foundations and substructures, and IACs.

Glossary

Inch Cape Onshore Transmission Works (OnTW)	Onshore transmission works associated with the Inch Cape Offshore Wind Farm comprising the construction, operation and decommissioning of an onshore substation, electricity cables and associated infrastructure required to export electricity from the Inch Cape Offshore Wind Farm to the National Electricity Transmission System.
Offshore Export Cables	The subsea, buried or protected electricity cables running from the offshore wind farm substation to the landfall and transmitting the electricity generated to the onshore cables for transmission onwards to the onshore substation and the electrical grid connection.
Offshore Export Cable Corridor	The area within which the Offshore Export Cables will be laid from the OSP and up to Mean High Water Springs.
(The) Consents	Collective term used to describe the Section 36 consents and Marine Licences issued to ICOL.

1 Introduction

1.1 Background

The Inch Cape Offshore Wind Farm (the Wind Farm) and Offshore Transmission Infrastructure (OfTI), hereafter referred to as the Development, is being developed by Inch Cape Offshore Limited (ICOL).

ICOL originally applied for consent for the Development in 2013, and this was updated, and a revised application submitted in 2018. In 2013 an Environmental Statement (ES) was produced to accompany the initial application based on the original design of the Wind Farm. This was also subsequently updated in 2018 with the production of an Environmental Impact Assessment Report (EIAR) to enable the use of progressions in technology following the original consent, through a reduction in turbine numbers (fewer turbines with larger generating capacity), and reduction in associated cabling (inter-array and export cables) to maximise efficiencies whilst minimising environmental impacts. The 2018 EIAR updated the 2013 ES and where impacts were predicted to be less than those already assessed, a new assessment was not undertaken as the conclusions drawn in the original 2013 ES remained valid.

The Section 36 (S36) Consent, Generating Station (GS) Marine Licence, and OfTI Marine Licence for the revised design were granted by Scottish Ministers on 17th June 2019. The S36 Consent was subsequently varied on 16th July 2020, 22nd July 2021, and 14th June 2023, the GS Marine Licence was varied on 14th June 2023 (Licence No. MS-00010140); and the OfTI Marine Licence varied on 23rd August and amended on 9th November 2023 (Licence No. MS-00010593).

A separate Marine Licence has also been granted for Additional Landfall Works to facilitate the construction of the export cables through the seawall on 15th January 2024 and varied on 31st March 2025 (MS-00011083).

1.2 Plan Objectives

This PEMP-GS has been prepared to address the specific requirements of Condition 24 of the S36 Consent and Condition 3.2.2.21 of the GS Marine Licence (presented in full in Table 3.1). The overall purpose of the PEMP is to set out the measures by which ICOL will monitor the environmental impacts of the Development throughout its lifespan, including pre-construction, construction, operational and decommissioning phase, as deemed needed by the Licensing Authority.

The PEMP-GS is a live document, which will be regularly reviewed in light of new information from project specific monitoring, and relevant findings from other monitoring programmes.

A separate PEMP (IC02-INT-EC-OFC-017-INC-PLA-001) was developed to address the monitoring requirements related to the OfTI (i.e., construction and operation of the offshore substation platform and export cables).

1.3 Linkages with other Consent Plans and Consent Conditions

The consent conditions require that the development of the PEMP-GS will be consistent with a number of other consent plans and consent conditions. Details of the linkages and relevant cross references are set out in Table 1.1.

It should be noted that information is not duplicated across consent plans; instead, where relevant, reference is made to the applicable linked consent plan containing the pertinent details. The plans detailed below are not required for approval of this PEMP-GS but are provided for ease of reference.

Table 1.1: PEMP- GS Links with Other Consent Plans and Documents

Reference	Description and relevance to the PEMP-GS
Construction Environmental Management Plan (CEMP) IC02-INT-EC-OFC-007-INC-PLA-001	The CEMP outlines the environmental management framework for the Development during construction phase of the Development. This plan will be revised and updated to cover the O&M phase in due course. The environmental management plan must be informed, so far as is reasonably practicable, by the baseline monitoring or data collection undertaken as part of the Application and a PEMP.
Cable Plan – Inter Array Cable (CaP-IAC) IC02-INT-EC-OFC-012-INC-PLA-001	The CaP-IAC contains details on environmental sensitivities and design considerations to mitigate, as far as possible, the effects of cable laying and associated cable protection during installation and operation of the inter array cables.
Pilling Strategy – Generating Station (PS-GS) IC02-INT-EC-OFC-005-INC-STR-002	The PS-GS must include details of any monitoring to be employed during pile-driving, as agreed with the Licensing Authority. The PS must, as far as reasonably practicable, be consistent with the PEMP.
Vessel Management and Navigational Safety Plan (VM&NSP) IC02-INT-EC-OFC-008-INC-PLA-001	The VM&NSP informs how vessel management and navigational safety requirements will be coordinated, particularly during construction but also during operation. The VM&NSP must, as far as reasonably practicable, be consistent with the PEMP.
Operation and Maintenance Programme (OMP)	The OMP must set out the procedures and good working practices for operations and the maintenance of the OSP, substructure, and export cables, including any environmental sensitivities which may affect the timing of the operation and maintenance activities.

Reference	Description and relevance to the PEMP-GS
	The OMP will be submitted in due course, prior starting the O&M phase of the Development, and will, as far as reasonably practicable, be consistent with the PEMP.
Fisheries Management and Mitigation Strategy (FMMS) **IC02-INT-EC-OFC-018-INC-STR-002**	The FMMS lay out guidelines to address potential interactions with fishing activity for vessels operating in and around the site and transiting to the site and sets out the approach to fisheries liaison and mitigation during the construction of the Development.

1.4 Document Structure

The structure of this PEMP-GS is provided in Table 1.2, below.

Table 1.2: PEMP-GS Document Structure

Section No	Section Title	Summary of Content
1	Introduction	Provides an overview of the Project and the consent requirements that underpin the content of this PEMP-GS. It also sets out the purpose, objectives and scope of the PEMP-GS and sets out the process for making updates and amendments.
2	Wind Farm and OfTI Overview	Overview of the Project as a whole.
3	Consent Conditions & EIAR Compliance	An overview of the Development and its associated Consents requirements.
4	Consultation	Provides detail on the consultation which has taken place relating to environmental monitoring, along with the outcomes of discussions and relevant actions taken.

Section No	Section Title	Summary of Content
5	Environmental Monitoring of the GS	Provides the required details in relation to each monitoring topic for the GS: - Ornithology - Marine Mammals; - Commercial Fisheries; - Marine and Diadromous Fish; and - Benthic Communities, Scour and Sedimentation.
6	Summary of proposed monitoring and reporting	Provides details on how the results of monitoring will be reported.
7	References	Provides full details of documents referenced in this document
Appendix A	Benthic, Scour and Sedimentation Monitoring Strategy	Provides the full monitoring strategy for benthic communities, scour and sedimentation.
Appendix B	Marine and Diadromous Fish Monitoring Strategy	Provides the full monitoring strategy for marine and diadromous fish.
Appendix C	Marine Mammals	Provides the full monitoring strategy for marine mammals.
Appendix D	Ornithology	Provides the full monitoring strategy for sea birds.

1.5 Document Control and Management of Change

This PEMP-GS is a 'live document' and will be regularly revised at intervals agreed with Scottish Ministers, to ensure that the information is kept up to date. Linkages exist between a number of offshore consent plans and programmes as highlighted in Table 1.1. As plans and programmes are updated, there will be a review of inter-linkages with other documents, to ensure these are also updated as relevant.

It is anticipated that a material change would be defined as one that fundamentally affects key

information being communicated in the PEMP-GS; a change in proposed mitigation or monitoring commitments; or a change that may increase environmental risk. A non-material change would be expected to be one that is communicated for information only; does not fundamentally affect assumptions made based on previous information provided; does not result in deviation from agreed commitments; or does not increase the level of environmental risk.

Where an update is required, MD-LOT will be consulted to determine whether the level of changes signifies a material change to an approved plan that requires formal consultation, or a non-material update to be approval by MD-LOT. MD-LOT may consult with relevant stakeholders to make this determination.

It is anticipated that the review and update process will be as follows:

1. Document review undertaken by ICOL (triggered by influencing factor listed above).
2. Need for an update of document communicated to MD-LOT and ICOL to inform MD-LOT whether it is deemed it as material or non-material.
3. MD-LOT to notify ICOL whether they agree with the materiality of the change (and therefore whether formal consultation will be required).
4. If change is considered non-material, ICOL will provide an updated PEMP-GS for MD-LOT to review, approve and make available.

Or:

If change is considered material, ICOL updates the PEMP-GS, and a formal consultation on the updated PEMP-GS is undertaken.

2 Wind Farm and OfTI Overview

2.1 Project Description

The Wind Farm will be located approximately 15 to 22 km (eight to 12 nautical miles) off the Angus coastline, to the east of the Firth of Tay. The Development Area is approximately 150 km^2 in area and will contain 72 (Wind Turbine Generators) WTGs, one Offshore Substation Platform (OSP), 66 kilovolts (kV) inter-array cabling and the initial section of the Export Cables between the Development Area boundary and OSP.

The Offshore Export Cables will be installed within the Offshore Export Cable Corridor (ECC) and will consist of two 220 kV export cables approximately 85 km long, between the landfall point at Cockenzie in East Lothian and the OSP within the Development Area. The ECC is approximately 1.4 km wide across at the widest point, reducing to approximately 250 m when approaching the landfall. The location and Wind Farm layout are illustrated in Figure 2.1.

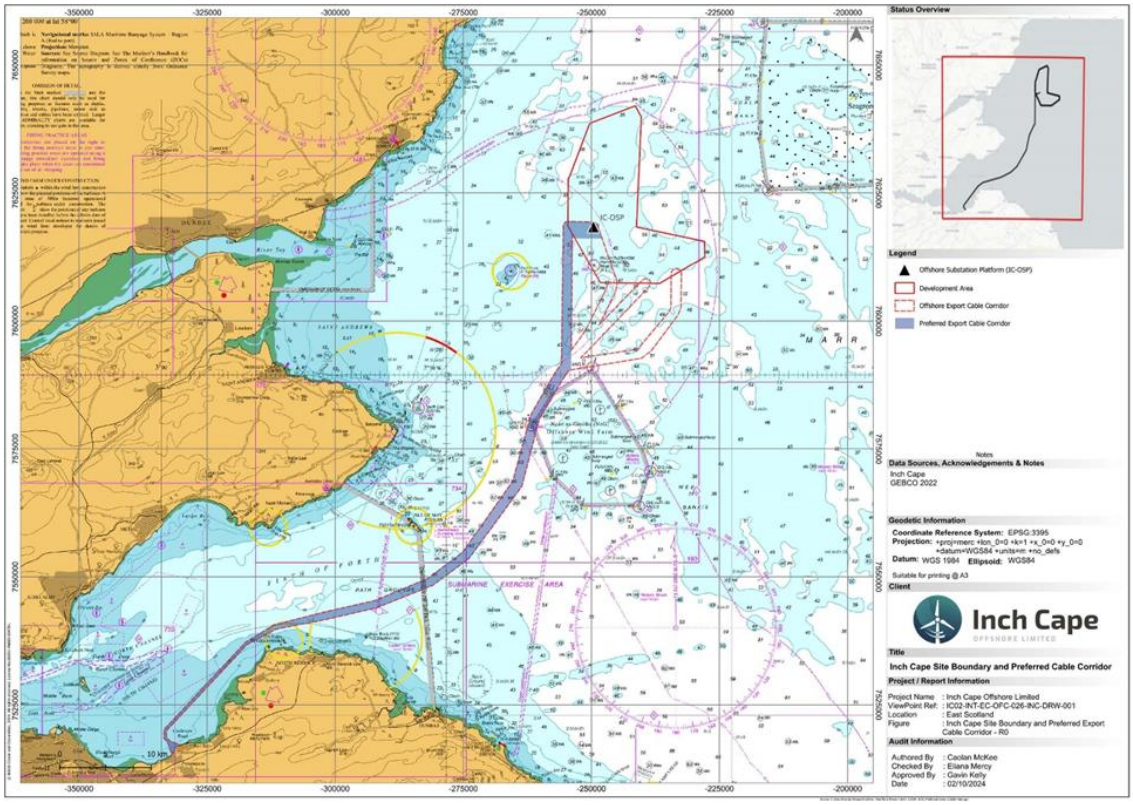

Figure 2.1: Project Location

2.2 Timing of Construction Works

Offshore construction is expected to commence in June 2025 (at the landfall) and is anticipated to

take over two years, running to August 2027. Details of the full programme for the construction works are provided in the Construction Programme (CoP) (IC02-INT-EC-OFC-004-INC-PRG-001). The works at the GS are currently planned to commence in December 2025, at the earliest.

3 Consent Conditions & EIAR Compliance

At the time of submission of this PEMP-GS, the Inch Cape project benefits from the following key consents (together, the 'Consents'):

- S36 Consent;
- GS Marine Licence;
- OfTI Marine Licence; and
- Additional Landfall Works Marine Licence.

This PEMP-GS has been prepared to satisfy the criteria of the S36 Consent condition 24 and GS Marine Licence condition 3.2.2.21 as set out in Table 3.1.

Table 3.1 provides the relevant consent conditions, along with details of where information to address each part of the condition has been provided.

The requirement to construct and operate the Development in accordance with the measures identified in the Application arise from specific requirements in the Consents. The Consents require the works to be constructed in accordance with the Application, and the supporting 2013 ES (ICOL, 2013) and 2018 EIAR (ICOL, 2018a) and related documents.

A summary of the receptors sensitivity and monitoring proposed at the ES and EIAR are presented in Section 5, for each relevant environmental and social receptor addressed in this plan. This PEMP-GS, and the remaining consent plans have been put together considering the commitments made on the 2013 ES and 2018 EIAR and corresponding consent conditions.

Table 3.1: Consent Conditions to be Discharged by this Offshore PEMP-GS

Condition Document	Condition Text	Relevant Section of this PEMP-GS
S36 Consent, Condition 24 GS Marine Licence, Condition 3.2.2.21	The Company [Licensee] must, no later than six months prior to the Commencement of the Works, submit a PEMP, in writing, to the Scottish Ministers [Licensing Authority] for their written approval. Commencement of the Works cannot take place until such approval is granted. Such approval may only be granted following consultation by the Licensing Authority with SNH, RSPB Scotland, WDC, SFF, FMS and any other environmental advisors or organizations, as required at the discretion of the Scottish Ministers [Licensing Authority].	This document sets out the PEMP-GS for approval by Scottish Ministers/ Licensing Authority
	The PEMP must be in accordance with the Application as it relates to environmental monitoring.	See Section 5
	The PEMP must set out measures by which the Company [Licensee] must monitor the environmental impacts of the Works. Monitoring is required throughout the lifespan of the Works where this is deemed necessary by the Scottish Ministers [Licensing Authority]. Lifespan in this context includes pre-construction, construction, operational and decommissioning phases.	See Section 5
	The Scottish Ministers [Licensing Authority] must approve all initial methodologies for the above monitoring, in writing and, where appropriate, in consultation with FTRAG referred to in condition 25 of the S36 Consent and 3.2.2.22 of the GS Marine Licence.	This document sets out the environmental monitoring methodologies within the PEMP-GS for approval by Scottish Ministers.

Condition Document	Condition Text	Relevant Section of this PEMP-GS
	Monitoring must be done in such a way so as to ensure that the data which is collected allows useful and valid comparisons between different phases of the Works. Monitoring may also serve the purpose of verifying key predictions in the Application.	See Section 5 and Section 6
	In the event that further potential adverse environmental effects are identified, for which no predictions were made in the Application, the Scottish Ministers [Licensing Authority] may require the Company [Licensee] to undertake additional monitoring.	The PEMP is a live document, and results of monitoring will be reported as per Section 6.
	The PEMP must cover, but not be limited to, the following matters: a. Pre-construction, construction (if considered appropriate by the Scottish Ministers [Licensing Authority]) and post-construction monitoring or data collection as relevant in terms of the Application, and any subsequent monitoring or data collection for: 1. Birds 2. Marine Mammals; 3. Commercial Fisheries; 4. Marine fish; 5. Diadromous fish; 6. Benthic communities; and 7. Seabed scour and local sediment deposition. b. The participation by the Company [Licensee] to contribute to data collection or monitoring of wider strategic relevance, identified and agreed by the Scottish Ministers [Licensing Authority].	This PEMP-GS presents the planned monitoring for the relevant environmental receptors: Ornithology – Section 5.2 Marine Mammals – Section 5.2 Commercial Fisheries – Section 5.3.5 Marine and Diadromous Fish – Section 5.5 Benthic Communities, Scour and Sedimentation – Section 5.6

Condition Document	Condition Text	Relevant Section of this PEMP-GS
	Due consideration must be given to the ScotMER programme, or any other successor programme formed to facilitate these research interests.	See Section 5
	Any pre-consent monitoring or data collection carried out by the Company [Licensee] to address any of the above issues prior to the determination of this marine licence may be used in part to discharge this condition subject to the written approval of the Scottish Ministers [Licensing Authority].	See section 5
	The PEMP is a live document which will be regularly reviewed by the Scottish Ministers [Licensing Authority], at timescales to be determined by the Scottish Ministers [Licensing Authority] to identify the appropriateness of ongoing monitoring. Following such reviews, the Scottish Ministers [Licensing Authority] may, in consultation with the FTRAG, require the Company [Licensee] to amend the PEMP and submit such an amended PEMP, in writing, to the Scottish Ministers [Licensing Authority], for its written approval. Such approval may only be granted following consultation with the FTRAG, and any other environmental, or such other advisors as may be required at the discretion of the Scottish Ministers [Licensing Authority].	See section 1.5

Condition Document	Condition Text	Relevant Section of this PEMP-GS
	The Company [Licensee] must submit written reports and associated raw and processed data of such monitoring or data collection to the Scottish Ministers [Licensing Authority] at timescales to be determined by the Scottish Ministers [Licensing Authority]. Consideration should be given to data storage, analysis and reporting. Marine Environmental Data and Information Network ("MEDIN") standards, or suitable equivalent to be agreed with the Licensing Authority should be adhered to.	See Section 6
	Subject to any legal restrictions regarding the treatment of the information, the results are to be made publicly available by the Scottish Ministers [Licensing Authority], or by such other party appointed at its discretion.	See Section 6
	The Scottish Ministers [Licensing Authority] may agree, in writing, that monitoring may be reduced or ceased before the end of the lifespan of the Works.	This PEMP is a 'live document' and will be regularly revised as discussed in Section 1.5

4 Consultation

Consultation on environmental monitoring requirements for the offshore wind farms in the Forth and Tay (F&T) region began in 2015 with the establishment of the F&T Regional Advisory Group (FTRAG). Two subgroups were later formed to focus on specific areas: FTRAG-MM for marine mammals and FTRAG-O for ornithology.

The FTRAG include representatives from the F&T Developers, Marine Directorate-Science, Evidence, Data and Digital (MD-SEDD) (formerly Marine Scotland Science (MSS)), MD-LOT (formerly Marine Scotland - Licensing Operations Team (MS-LOT)), NatureScot (formerly SNH), Royal Society for the Protection of Birds (RSPB), Whale and Dolphin Conservation (WDC), and others.

A draft version of ICOL's approach to ornithology and marine mammals monitoring approach, presented in Appendix C – Ornithology Monitoring Strategy and Appendix D – Marine Mammals Monitoring Strategy, was circulated to the FTRAG members in March 2025. Responses received have been taken into consideration, and an overview of these, along with relevant historic consultations, is also presented in respective Appendices.

Discussions on the F&T offshore wind farms' monitoring drivers for other receptors, i.e. diadromous and marine fish, benthic ecology, scour and sedimentation, and commercial fisheries; were previously undertaken through the FTRAG General group, in particular during the meeting held on the 28 Jan 2020[1]. The overall approach for marine and diadromous fish monitoring was to focus on strategic studies (such as those led by ScotMER), rather than project specific monitoring. It was also discussed that the monitoring for scour and sedimentation should be led by engineering requirements rather than any environmental drivers.

The PEMP Rev 0 and its appendices were circulated for consultation in August 2025 as part of the approval process led by MD-LOT, with comments received on 18 September 2025. Further consultation was undertaken during the review of the PEMP Rev 1, with responses received on 19 November 2025. Where required, the PEMP and appendices have been updated to address and incorporate this feedback.

[1] Meeting minutes available on http://www.marine.gov.scot/ml/forth-tay-regional-advisory-group-ftrag

5 Environmental Monitoring for the GS

5.1 Introduction and Overview to Monitoring

This section describes the proposed monitoring approach for each ecological receptor to meet the requirements of the S36 Consent condition 24 and GS Marine Licence condition 3.2.2.21. A separate PEMP was developed to address the monitoring requirements related to the OfTI Marine Licence, the PEMP-OfTI (IC02-INT-EC-OFC-017-INC-PLA-001).

This PEMP covers monitoring during pre-construction, construction and operational phase of the Development for the GS. When considering the relevant monitoring projects and the allocation of resources for environmental monitoring, ICOL takes into account how closely these activities reflect the direct effects arising from the Development.

As a guiding principle, ICOL's approach is to prioritise support for monitoring studies that directly inform the understanding of the specific impacts resulting from the Development, particularly where these are recommended for validating key assessment predictions and mitigation. In parallel, ICOL recognises the value of strategic and regional monitoring efforts that contribute to a wider understanding of cumulative effects. In these cases, ICOL's policy is to contribute on a co-funding basis to ensure resources are allocated in a proportionate and collaborative way across the sector. Where co-funding cannot be secured, the scope of monitoring may need to be adjusted to reflect the reduced available budget.

As noted in Section 1.5, the PEMP is a live document, and the approach to monitoring will be further refined as the project evolves through the different stages of development. This PEMP does not cover monitoring activities during or after the decommissioning of the Development. A separate assessment will be conducted at the appropriate time, which will guide and establish the monitoring requirements for the decommissioning phase.

In all cases, results of the monitoring undertaken to date will inform future plans and processes, and as such this document will continue to be updated and changes agreed with MD-LOT in line with the procedure for change control identified in Section 1.5.

5.2 Ornithology

The monitoring strategy to ornithology is provided in full in Appendix C – Ornithology Monitoring Strategy, with a summary provided below.

5.2.1 Summary of Ornithology Assessment

The impacts to key ornithology receptors resulting from the Development (revised design) were assessed in the 2018 EIAR (ICOL, 2018a), HRA (ICOL, 2018b), the 2022 variation supporting

information (ICOL, 2022a), the updated collision risk estimates for the 2022 variation (ICOL, 2022b) and collision risk estimates updated for the 2024 final design (Royal HaskoningDHV, 2024).

The baseline conditions for the Development Area identified regular use by protected bird species, particularly during the breeding season, with the area falling within foraging ranges of seabirds from key breeding colonies, including those designated as Special Protection Areas (SPAs) (as shown in Figure 5.1).

The assessment focused on species such as gannet, kittiwake, puffin, guillemot, razorbill, and herring gull, with concerns centred on potential displacement, barrier effects, and collision risks during operation. Construction effects were scoped out as unlikely to be significant. The 2018 EIAR and HRA found no significant impacts on regional populations or SPA integrity, with effects assessed as minor significance for the project alone and moderate significance (but non-significant) for some species in cumulative assessments. Marine Scotland's Appropriate Assessment (Marine Scotland, 2019) concluded that, with conditions applied, there would be no adverse effect on the integrity of the relevant SPAs.

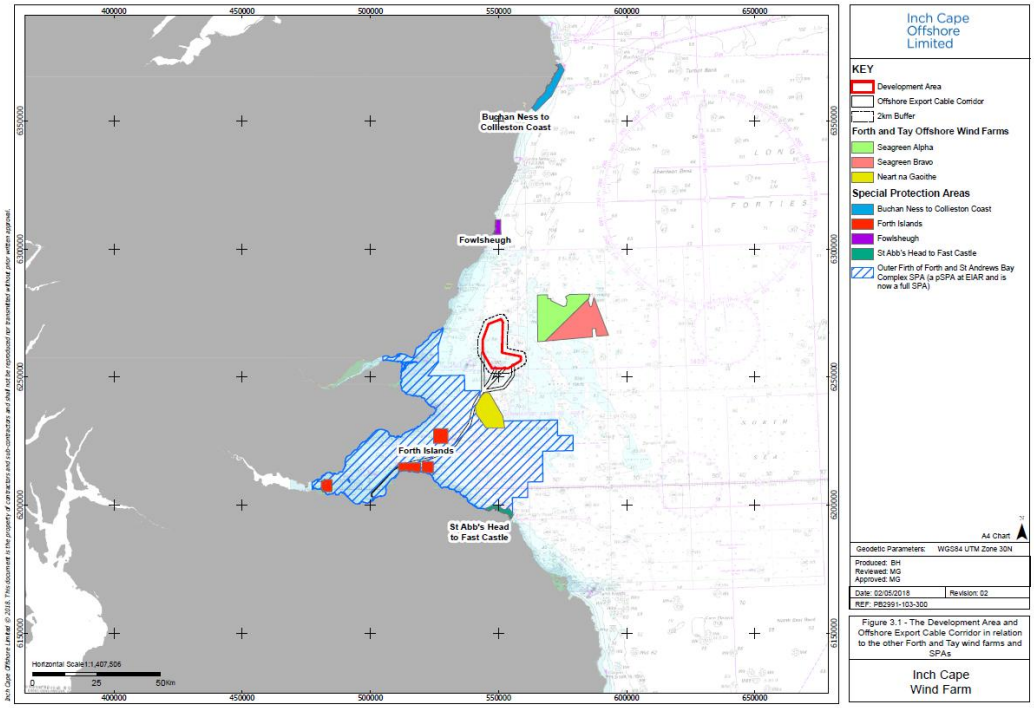

Figure 5.1: The Development Area and Offshore Export Cable Corridor in relation to the F&T wind farms and SPAs with connectivity

5.2.2 Proposed Approach to Monitoring

The proposed ornithology monitoring approach is designed to improve understanding of seabird interactions with offshore wind farms in the F&T and to validate key assumptions from the 2018 EIAR. The proposed monitoring prioritises impacts on SPA breeding populations, particularly during the breeding season, as these are considered most sensitive. Monitoring will focus on the pre-construction and operational phases, excluding construction and non-breeding periods, which are not linked to significant effects.

Please refer to the Appendix C – Ornithology Monitoring Strategy for further discussion on the rationale underpinning the proposed monitoring, including key priority species and key monitoring questions.

5.2.3 Project Specific Monitoring

Boat based and Digital Aerial Surveys (DAS) have been undertaken across the Development Area and a 4 km buffer. Pre-construction DAS were undertaken in three separate campaigns, covering the breeding seasons of 2017, 2019 and 2024. The two latest survey campaigns were part of a wider survey programme encompassing all the F&T wind farms, and consequently there are small differences in transect coverage of the Survey Area when compared to the 2017 campaign.

ICOL will undertake DAS post-construction monitoring during two consecutive breeding seasons — expected to start in 2028 (immediately after construction, anticipated to be completed by Q3 2027. These surveys will follow the same design used in the 2019 and 2024 campaigns, covering the Inch Cape Wind Farm area and a 4 km buffer from March to September.

Final methodology will be agreed with MD-LOT and consulted with FTRAG-O, taking into account results from other F&T developers using similar approaches. After the two surveys, the results will be reviewed to determine whether further monitoring is necessary.

5.2.4 Regional and Strategic Monitoring

The regional monitoring for seabirds in the F&T region includes several collaborative efforts aimed at improving the understanding of seabird interactions with offshore wind farms and validating assessment predictions.

It is noted that the long-term continuation of these studies depends on post-construction funding commitments from developers and agreements reached through FTRAG-O. ICOL's proposed contribution described in the sections below assumes that monitoring costs will be shared with at least one other developer. If no co-funding agreement is reached, the scope of the monitoring surveys may need to be revised or reduced, to reflect a lower available budget.

5.2.4.1 GPS tracking and colony monitoring at the F&T

ICOL will contribute to the GPS tracking and colony monitoring of breeding kittiwake, puffin, guillemot and razorbill at Isle of May and GPS Tracking and colony monitoring at St Abbs and Fowlsheugh for kittiwakes.

ICOL will collaborate with the F&T developers to share the GPS tracking and colony monitoring costs associated with 2023 and 2024 (pre-construction period), and future costs associated with two consecutive years after Inch Cape wind farm construction (post-construction period, anticipated to be 2028 and 2029). In addition, following further advice received during the PEMP Rev 1 consultation, ICOL commits to also contribute to monitoring in 2027, to minimise the risk of a gap in the monitoring continuity.

Contributions during the construction phase were not initially intended (i.e. from 2025 to 2027), as construction is anticipated to extend over a short period (2-3 years), and the impacts from construction are not associated with the key impacts assessed for the Development. Therefore, priority was given to surveys being undertaken during pre-construction and operational periods, so ensuring that the available resources are focussed on obtaining data which relate to the key predicted impacts.

The comparison of both pre and post construction datasets would allow understanding the effects resulting from Inch Cape Wind Farm development in combination with the other F&T Developments.

5.2.4.2 Gannet adult survival and tagging

ICOL will contribute to the gannet adult survival and tagging at Bass Rock, Scotland, and Grassholm, Wales.

ICOL will collaborate with the F&T developers to share the gannet adult survival monitoring costs associated with the period starting in 2023 (i.e. two years prior Inch Cape Wind farm construction) up to two consecutive years after construction (expected to be achieved in 2029). The total duration of this contribution (i.e. if this will extend up to two years post construction) will be subject to ongoing evaluation to ensure it remains suitable for addressing the relevant monitoring questions for the F&T wind farm developments. It was noted that this was a long-term study to analyse adult survival rather than just wind farm impacts, therefore management and funding of these surveys may be incorporated to other strategic initiatives in the future.

5.2.4.3 Seabird Interactions Study

Consideration is also being given to contribution to Seabird Interaction Study. The study is being conducted by STRIX, and funded by NnG, Seagreen and Berwick Bank offshore wind farms. The potential for ICOL contribution to this study is currently being discussed with the funding group.

5.2.5 Reporting

5.2.5.1 Project specific monitoring - DAS

Reporting on DAS will be provided in two phases: (1) baseline report, following the completion of the 2024/2025 DAS data analysis (currently ongoing), and (2) pre and post construction comparison report, following the analysis of the two years of post-construction campaign, with considerations for whether further surveys are recommended.

The baseline report will include between year comparisons of densities of the key seabird species on a month-by-month basis, as well as for the overall breeding season. These comparisons would also be undertaken according to different behaviours (i.e. all birds, birds in flight, birds on the water), and at a range of resolutions (e.g. array, array plus 2km buffer and full survey area). Distribution maps would be included to enable visualisation of any between year differences that are identified in densities. The specific timeline for submission of written reports and associated raw and processed data will be agreed with MD-LOT and FTRAG in due course.

5.2.5.2 Regional and Strategic Monitoring

The timeline for reporting on regional and strategic monitoring will be agreed with the FTRAG-O.

5.3 Marine Mammals

The monitoring strategy to marine mammals is provided in full in Appendix D – Marine Mammals Monitoring Strategy, with a summary provided below.

5.3.1 Summary of Marine Mammal Assessment

The most common marine mammal species recorded off the Firths of Forth and Tay include minke whale (*Balaenoptera acutorostrata),* bottlenose dolphin (*Tursiops truncatus)*, white-beaked dolphin (*Lagenorhynchus albirostris*), harbour porpoise (*Phocoena phocoena*), grey seal (*Halichoerus grypus)* and harbour seal (*Phoca vitulina*). Harbour porpoise, bottlenose dolphin, grey seal and harbour seal can be observed off the Firths of Forth and Tay throughout the year whilst minke whale and white-beaked dolphin occur seasonally.

The Development Area does not overlap any Natura 2000 sites designated for marine mammals. However, it is considered that there is potential for connectivity with the following four sites: Berwickshire and North Northumberland Coast Special Area of Conservation (SAC; grey seal); Firth of Tay and Eden Estuary SAC (harbour seal); Isle of May SAC (grey seal); and Moray Firth SAC (bottlenose dolphin).

The main concern for marine mammals is the potential effects in response to noise from pile driving. The potential for auditory injury and behavioural responses arising from construction of the GS were assessed quantitatively in the 2018 EIAR (ICOL, 2018a), Variation Report (2022) and were modelled and reassessed in the scope of the PS–GS (IC02-INT-EC-OFC-005-INC-STR-002).

Piling activities at the GS will be required for the installation of 54 monopiles and 18 jackets (three pin piles each jacket). Mitigation proposed includes 10-15 minutes of acoustic deterrent device (ADD) use, a 30-minute soft start period, and a protocol for restarting operations following a break in piling.

The most recent revised underwater propagation model and impact assessment presented in the PS-GS supports an overall low risk of potential for auditory injury arising from the piling activities, and a low level of disturbance, with a relatively low percentage of each reference population having the potential to be disturbed/displaced for most species. For all species, population modelling has shown there to be no predicted population level impact of disturbance from pile driving.

The 2018 conclusions drawn for designated sites for other species and habitats remain valid, and it can be concluded that the proposed works (pile driving works for the installation of the WTGs) (pile driving works for the installation of the WTGs), alone or in combination, will not cause adverse effects on the integrity of any SAC designated for marine mammal species (ICOL, 2025).

5.3.2 Proposed Approach to Monitoring

The proposed marine mammals monitoring approach is designed to improve understanding of how marine mammals respond to construction activities, particularly piling, and to validate the assumptions made during the licensing process.

Initial discussions with the FTRAG-MM identified bottlenose dolphins, grey seals, and harbour seals as priority species for potential monitoring due to uncertainties around their behavioural responses to piling noise and their importance at the Natura 2000 site designation level. Of these, bottlenose dolphins were prioritised, given the limited existing data on their response to offshore wind farm piling and the proximity of the development to key dolphin habitats. In contrast, monitoring harbour seals was deemed unfeasible due to low numbers in the affected area, and grey seal tracking was considered unsuitable due to their wide-ranging movements.

Other species such as harbour porpoises, minke whales, and white-beaked dolphins were acknowledged as potentially being displaced by piling noise, but they were not prioritised for monitoring. This was due to difficulties in correlating population-level impacts to site-specific disturbances and a general lack of robust baseline data, especially for the latter two species. Furthermore, although harbour porpoises are relatively common in the Forth and Tay region, their population density in a national context is not considered high.

Please refer to the Appendix D – Marine Mammals Monitoring Strategy for further discussion on the rationale underpinning the proposed monitoring, including key priority species and key monitoring questions.

5.3.3 Project Specific Monitoring

5.3.3.1 Digital Aerial Surveys (DAS)

As informed in Section 5.2.3, a series of monthly DAS were conducted at the Inch Cape Development Area, covering three years of survey in 2017/18, 2019/20 and 2024/25. While these surveys are primarily designed for monitoring ornithological targets, detections of marine mammal species, locations and sightings rates were processed and presented in survey reports.

Post-construction DAS is anticipated in the scope of the ornithology monitoring. It is currently proposed that post-construction site specific DAS monitoring will cover two ornithology breeding seasons during the operation and maintenance phase of the Development. This includes the first breeding season immediately after completion of construction, anticipated to take place in 2028, and a breeding season two years later, anticipated in 2030. Similar to the work that was carried out during the pre-construction DAS, marine mammals' detections will be recorded alongside ornithology bird species, where possible.

5.3.3.2 Passive Acoustic Monitoring (piling)

ICOL has deployed a Passive Acoustic Monitoring (PAM) array to monitor detections of dolphins prior, during and after the WTG piling works at Inch Cape. The array comprises six stations, deployed near the coast to maximise detections of the coastal bottlenose dolphins. The locations and spatial distribution of the PAM stations were consulted with NatureScot in June 2025. These, in addition to the five east coast SPAN PAM sites, will be used in the analysis.

This monitoring will build on and complement the passive acoustic monitoring being delivered through ECOMMAS/ SPAN and the Seagreen and NnG OWF PEMPs, applying lessons learned such as the necessity of deploying broadband acoustic recorders in addition to click detectors (i.e. C- or F-PoDs) to adequately detect dolphins.

The passive acoustic monitoring has been designed to:

1) Detect bottlenose dolphin clicks and whistles to determine if there is a change in bottlenose dolphin detections in relation to piling at Inch Cape.

2) Detect underwater noise levels and provide additional information on propagation of piling noise in very shallow waters where bottlenose dolphins are primarily located.

3) Provide fine-scale data on the residency of bottlenose dolphins in the area to complement and enhance photo-ID survey data for contribution to wider studies of the Coastal East Scotland bottlenose dolphin population (beyond the scope of the Inch Cape PEMP).

The monitoring is being carried out across an approximate two-year period, including baseline data prior (Jul-Dec 2025), during (Dec 2025 up to Sep 2026), and post (end of piling up to Jul 2027) piling activities, with equipment servicing occurring every three months. Data will be analysed using

PAMGuard and FPOD.exe to assess dolphin detections and compare presence across phases of construction. Modelling will examine changes in click and whistle detections and potentially infer displacement by comparing activity patterns across stations.

Noise data will also be used to validate predicted noise propagation models in shallow waters. Hammer information will help link noise events to pile strikes for comparison with real-time measurements. The spatial distribution of PAM stations (<2 km from shore, within the 20m contour) reflects the known coastal preference of bottlenose dolphins and aims to maximise detection likelihood, though it limits the ability to assess response over a broader distance/noise gradient.

5.3.3.3 Underwater Noise Monitoring during piling

ICOL will undertake underwater noise monitoring as part of the PS-GS. The aim of the underwater noise monitoring during pile driving activities is to collate information on underwater noise levels during piling, with a focus on validating the predictions and potentially improving cumulative PTS (SEL_{cum}) predictions in future impact assessments. The detailed design for the underwater noise monitoring has yet to be finalised, however, ICOL has initially agreed the high-level scope and methods of the monitoring with NatureScot in August 2025, which are now being further discussed in the scope of the PS-GS.

5.3.4 Regional and Strategic Monitoring

5.3.4.1 Improving Understanding the Bottlenose Dolphin Population use of the Forth and Tay Region

The Scottish east coast bottlenose dolphin population has been the focus of research since 1989 through a joint project by the University of Aberdeen and the University of St Andrews. Initially centred on the Moray Firth, the study expanded southward to include the Firth of Tay and adjacent waters as the dolphin population's range extended in the late 1990s. Over the past 15 years, the research has generated annual estimates of population size, survival, and birth rates, while also documenting individual movements along the east coast.

Between 2020 and 2025, the project titled '*Monitoring the east coast bottlenose dolphin population: accounting for southward range expansion' was undertaken.* The purpose of these vessel-based photo-identification (photo-ID) surveys was to better understand the residency, fecundity and survival of bottlenose dolphins in the Forth and Tay, which requires a regional long-term photo-ID dataset. The programme included five years of field work with a final year (2025) of overall data analysis, interpretation and reporting.

ICOL will contribute to the bottlenose dolphin Photo-ID project for the next survey cycle. The level of contribution is yet to be confirmed, and discussions are ongoing with University of St Andrews.

5.3.5 Reporting

5.3.5.1 Project specific monitoring

For DAS, a summary of the marine mammals' detections obtained in the pre-construction surveys will be presented to the FTRAG-MM once the data analysis for the 2024/2025 campaign is complete. Similarly, the results of the post construction DAS will be presented in the FTRAG-MM following each monitoring campaign (expected in 2028 and 2029).

For the PAM array project, ICOL will provide progress updates at FTRAG-MM meetings. A final report is anticipated in Q1 2028 and will be circulated to the FTRAG-MM for comment prior to submission to MD-LOT.

5.3.5.2 Regional and Strategic Monitoring

For the Bottlenose Dolphin Photo-ID programme, progress updates will be given during FTRAG-MM meetings. Although the frequency of reporting is yet to be defined, reports will be circulated to FTRAG-MM for comments within three months of receipt and subsequently submitted to MD-LOT.

5.4 Commercial Fisheries

5.4.1 Summary of Commercial Fisheries Assessment

The assessment of the potential impacts resulting from the construction, operation and decommissioning of the Development upon commercial fishing activities were assessed in Chapter 18 of the 2013 ES (ICOL, 2013) and Chapter 14 of the 2018 EIAR (ICOL, 2018a).

The fisheries likely to be present in the Development area are nephrops, creel, scallop and squid. The assessment anticipated that any effects on commercial fisheries arising from the Development would be not significant. Mitigation measures included the development of a Fisheries Management and Mitigation Strategy (FMMS) (IC02-INT-EC-OFC-018-INC-STR-002), which lays out guidelines to address potential interactions with fishing activity for vessels operating in and around the site and transiting to the site, and sets out the approach to fisheries liaison, co-operation and mitigation during the construction of the Development.

5.4.2 Proposed Approach to Monitoring

The aim of commercial fisheries monitoring is to understand variations in commercial fisheries activity in response to the construction and operation of the wind farm. The outcomes of this monitoring will be communicated to the commercial fishing stakeholders through the Forth and Tay Commercial Fisheries Working Group (FTCFWG) and inform future updates to the ICOL Fisheries Management and Mitigation Strategy (FMMS) (IC02-INT-EC-OFC-018-INC-STR-002).

The need for targeted post -construction over trawl surveys with the array site is considered and discussed in the CaP-IAC (IC02-INT-EC-OFC-012-INC-PLA-001). The survey scope and methodologies will be discussed with the local fishing industry and agreed with the Licencing Authority

following completion of the GS rock protection works and once as-built information is available.

The commercial fisheries monitoring ICOL will undertake comprises:

- Data collection:
    - Collecting landings data by port, focusing on tonnage, target species, and first-sale value. These will be collected pre-construction, during construction and post-construction.
    - Collating other sources of evidence on commercial fisheries activity as may be reasonably available on a regular basis, such as landing statistics and Vessel Monitoring System (VMS) data.
    - Collating additional desk-based data sources: Including available Automatic Identification System (AIS) data, Offshore Fisheries Liaison Officer (OFLO) reports, and any existing records from the Marine Coordination Centre (MCC) regarding fishing vessel activity
- Data Analysis:
    - Analysing available data and evidence to better understand any variations, trends and seasonality.
    - Analysing VMS and available AIS data to assess the distribution and movement of fishing vessels within the area and identify important fishing grounds.
    - Consideration will be given to qualitative insights on fishing activity and potential concerns regarding wind farm construction, to be obtained through engagement with fishing communities through onshore Fisheries Liaison Officers (FLOs) or FTCFWG.
    - Identification of changes in fishing activity, and consideration to whether these are a result of the Development activities.
    - Identification of changes in fishing activity, and consideration to whether these are a result of the Development activities.

It noted that due to the range of factors influencing fishing patterns and the resolution of available monitoring data, it may not be possible to attribute changes in fishing activity specifically to the Development in isolation (i.e. independent of other variables). Nonetheless, the monitoring aims to improve understanding of fishing activity by comparing trends across regional and local study areas, aligned with key project milestones. This will support validation of the mitigation measures outlined in the FMMS and inform any future revisions as needed.

In addition, as noted in Section 5.5.2, ICOL will explore opportunities for contributing with the ScotMER programme (Scottish Government, 2024) and other developers to facilitate research on marine fish, shellfish and diadromous fish, and promote the sustainable development of offshore renewable energy.

5.4.3 Reporting

It is proposed that reporting outputs will be delivered to in two reports:

- Construction Report: This report will compile, analyse and compare data from pre-construction (i.e. from 2018 to start of construction preparatory works)[2] and construction (estimated to cover the period June 2025 to August 2027).
- Operation and Maintenance Report: This report will compile, analyse and compare data from the pre-construction, construction (as per Construction Report) and the first 3 years of operation phase.

The findings from monitoring reports will be presented and discussed during regular meetings with key stakeholders, including fisheries representatives and working groups. Where required, interim results of this monitoring will also be presented for discussion. The dates for the report submission will be agreed in due course with the FTCFWG, and results will be used to inform updates to the ICOL FMMS.

5.5 Marine Fish and Diadromous Fish

The full strategy proposed for monitoring marine and diadromous fish is provided in full in Appendix B – Marine and Diadromous Fish Monitoring Strategy, with a summary provided below. Note: the strategy for marine and diadromous fish has been written for the Development as a whole, i.e. the works licensed under the GS and OfTI Marine Licences.

5.5.1 Summary of Marine Fish and Diadromous Fish Assessment

The impacts of the Development on marine fish were assessed in Chapter 12 of the 2013 ES (ICOL, 2013) and Chapter 9 of the 2018 EIAR (ICOL, 2018a) and later reassessed in the scope of the PS – GS (IC02-INT-EC-OFC-005-INC-STR-002).

The majority of the potential impacts were considered to be negligible/minor, minor or minor/moderate and not significant. Barrier effects, disturbance or physical injury associated with construction noise on the behavioural responses of hearing specialists (herring in particular) and Special Area of Conservation (SAC) qualifying feature species were assessed as moderate and not significant (ICOL, 2013).

The 2018 EIAR (ICOL, 2018a) only assessed effects (barrier effects, disturbance, or physical injury

[2] Consideration will be given to the representativeness of the pre-construction data collection periods. In particular, years significantly affected by the COVID-10 pandemic may be excluded.

associated with construction noise) on hearing specialist fish (herring, sprat, cod and shad) due to the increase in hammer energy proposed. The 2018 EIAR concluded that the effect was not significant. Impacts on SAC qualifying feature species (Atlantic salmon) were scoped out of the 2018 EIAR on the basis that they would not likely result in significant effects.

The most recent revised underwater propagation model and impact assessment presented in the PS-GS (IC02-INT-EC-OFC-005-INC-STR-002) concludes the proposed works will not result in significant effects on fish receptors, and confirms the conclusion of the 2018 EIAR and 2013 ES remain valid.

5.5.2 Proposed Approach to Monitoring

Based on the available evidence, and the current understanding within the offshore wind industry of barrier effects, disturbance, or physical injury associated with construction noise, project specific monitoring during or after construction for marine fish and diadromous fish species is not proposed for the Development. Full justification is detailed in Appendix B – Marine and Diadromous Fish Monitoring Strategy.

While no project specific survey is proposed, ICOL will continue to work with the Marine Directorate and FTRAG to identify suitable opportunities to support national or regional initiatives. In line with Section 36 Condition 24, and GS Marine Licence Condition 3.2.2.21, ICOL will explore opportunities for contributing with the ScotMER programme (Scottish Government, 2024), or any successor programme formed to facilitate research on marine fish, shellfish and diadromous fish.

5.6 Benthic Communities, Scour and Sedimentation

The full strategy proposed for the monitoring of benthic ecology, and of scour and sedimentation is presented in Appendix A – Benthic, Scour and Sedimentation Monitoring Strategy, with a summary provided below. Note: the strategy for benthic ecology, scour and sedimentation has been written for the Development as a whole, i.e. the works licensed under the GS and OfTI Marine Licences.

5.6.1 Summary of Benthic Ecology Assessment

The Benthic Ecology Chapter 12 of the 2013 ES (ICOL, 2013) assessed the impacts to key benthic receptors groups. The majority of the potential impacts in the Development Area were considered to be negligible/minor, minor or minor/moderate and not significant. Deposition of resuspended sediments leading to smothering and introduction of non-indigenous species (NIS) were considered to both have a moderate non-significant effect on habitats.

Overall, the Development Area consisted of circalittoral sands and gravelly sands with areas of muddy mixed sediment. The Icelandic cyprine (or ocean quahog, Arctica islandica) which is a PMF and listed on the OSPAR list of threatened or declining species (Annex V), was recorded at moderate abundances across the Development Area (0-5000 individuals per 100 m²). All individuals recorded were juveniles but were greater than one millimetre (mm) in diameter.

No evidence of any Annex I biogenic reef features was observed during any of the surveys carried out across the Development Area, though a number of individuals from reef forming polychaete species were recorded, specifically *Sabellaria spinulosa* and *Serpula vermicularis*. These species are ubiquitous in sediments around the UK, however they only form reef structures in very specific environmental conditions which do not exist in the vicinity of the Development.

5.6.2 Summary of Scour and Sedimentation Assessment

The impacts of the Development on metocean and coastal processes were assessed in Chapter 10 of the 2013 ES (ICOL, 2013). The potential effects to this receptor did not exceed minor/moderate significance for any of the impacts assessed and were therefore considered to be non-significant. For the revised design, an update to the 2013 assessment was not required as all parameters were within those originally assessed during 2013, and the conclusions from the 2013 Metocean and Coastal Processes chapter were considered to remain valid.

5.6.3 Proposed Approach to Monitoring – Benthic Ecology

Benthic ecology data have been collected to inform the ES (ICOL, 2013) supporting ICOL consent application. These data included inputs from a literature review, and site-specific survey involving grab sampling and seabed video transects. The ES concluded that no significant impacts to benthic ecology receptors are anticipated as a result of the Development, and no additional mitigation measures or monitoring were proposed.

Based on the available evidence, and the current recommendations in relation to environmental monitoring at offshore wind developments, no further monitoring for benthic ecology is proposed for the Development.

5.6.4 Proposed Approach to Monitoring – Scour and Sedimentation

Local scouring is strongly influenced by wave and tidal activity, as well as the way these hydrological processes interact with the structure and the surrounding soil conditions. Monitoring seabed scour around foundations is crucial from an engineering standpoint to ensure that the seabed sediments essential for maintaining the structural integrity of the foundation are not eroded beyond the intended design limits.

The approach to any post-construction scour monitoring will be led by engineering and asset integrity requirements, which will determine the scope of work, methods and required frequency. Scour survey campaigns at the WTG foundations may be required. Details of any proposed scour monitoring will be developed following completion of the works on a risk-based approach, taking into account the risk of scour developing across the Development. The scour monitoring strategy will be adapted as required based upon evidence collected over the lifetime of the development.

Periodic surveys to verify cable burial conditions at specific sections will be carried out in line with the CaP-IAC (IC02-INT-EC-OFC-012-INC-PLA-001). The frequency and scope of this initial survey and

any subsequent monitoring will be determined via a risk-based assessment which will provide a proportional indication of the risk of future cable exposure.

6 Summary of proposed monitoring and reporting

The proposed environmental monitoring for the Development has been designed to address key uncertainties identified in the ES/EIAR and HRA. Monitoring strategies have been tailored to ensure that data are collected during the most relevant periods and on the most sensitive receptors, supporting validation of predicted impacts and informing any necessary future mitigation.

ICOL will submit written reports and associated raw and processed data of such monitoring or data collection to the Licensing Authority at timescales to be agreed with MD-LOT and/or FTRAG. Where applicable, Marine Environmental Data and Information Network ("MEDIN") standards will be adhered to. ICOL acknowledges that, subject to any legal restrictions regarding the treatment of the information, all data will be made publicly available by MD-LOT.

A summary of the proposed monitoring and reporting is provided in Table 6.1 below.

Table 6.1: Summary of proposed monitoring and reporting

Receptor	Proposed monitoring	Timeline	Reporting
Ornithology	Digital Aerial Survey during breeding seasons, comparing pre and post construction.	Pre-construction: 2017, 2019 and 2024. Post-construction: 2028 and 2029	(1) Baseline report, following the analysis of the 2024/25 data analysis. (2) Post-construction report, following the two years DAS campaign.
	Contribution to regional and strategic monitoring (GPS tracking and colony monitoring at Isle of May, St Abbs and Fowlsheugh and adult gannet survival)	Proposed contribution for GPS tracking and colony monitoring covering 2 years pre and 2 years post construction. Contributions to Gannet adult survival to cover 2023 to 2029.	Reporting will be agreed with the FTRAG-O.
Marine Mammals	PAM array design for dolphin detections.	Total duration of 2 years, starting 4-5 months prior piling works, and extending 9-12 months following piling.	A final report is anticipated in Q1 2028 and will be circulated to the FTRAG-MM for comment within three months of receipt of the reports from the contractor.
	Contribution to regional monitoring – Bottlenose dolphin Photo ID	The duration for the next survey cycle period is to be confirmed.	The frequency of reporting is yet to be defined, and agreed with the FTRAG-MM.

Receptor	Proposed monitoring	Timeline	Reporting
Commercial Fisheries	Data collection and analysis of fisheries data (landings, VMS, AIS) from pre-construction, construction and post-construction phases	Pre-construction , construction , and three years post construction.	Reports to be issued on two phases: (1) following end of construction, and (2) following 3 years of operation.
Diadromous/ Marine Fish	No project-specific surveys proposed. Opportunities for contribution to ScotMER to be considered.	N/A	N/A
Benthic Ecology	None proposed	N/A	N/A
Scour & Sedimentation	Engineering led risk-based scour and cable burial surveys, tied to asset integrity requirements.	Post-construction (as required)	To be determined.

7 References

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Appendix A – Benthic, Scour and Sedimentation Monitoring Strategy (REV E)

Appendix B – Marine and Diadromous Fish Monitoring Strategy (REV E)

Appendix C – Ornithology Monitoring Strategy (REV 04)

Appendix D – Marine Mammals Monitoring Strategy (REV 01)