



Inch Cape
OFFSHORE LIMITED

Inch Cape Offshore Wind Farm

**Project Environmental Monitoring Programme -
Offshore Transmission Infrastructure (PEMP - OfTI)**

February 2025

Inch Cape Acceptance

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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 document in relation to the Offshore Transmission Infrastructure (OfTI) associated with the Inch Cape Offshore Wind Farm:

- Offshore Transmission Infrastructure Marine Licence (as varied) (MS-00010593 dated 9th November 2023)

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

This PEMP- OfTI has been prepared to discharge consent conditions for the OfTI Marine Licence specifically, a separate PEMP is being developed to discharge the conditions associated with the Inch Cape OWF Generating Station, the PEMP-GS (IC02-INT-EC-OFC-017-INC-PLA-002).

The overall aim of the PEMP- OfTI is to ensure appropriate and effective monitoring of the impacts of the Development will be undertaken. The PEMP- OfTI 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- OfTI 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- OfTI 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- OfTI conveys information on the following:

- Details on the environmental monitoring proposed for the OfTI, for the pre-construction, construction (where considered appropriate by Scottish Ministers) and, where relevant, post-construction phases of the Development on:
 - Marine mammals (pre-construction only at this stage);
 - 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- OfTI 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 along the OfTI;
- Section 6 provides the details on the reporting process and the application of survey results; and
- Appendices including OfTI boundary coordinates and detailed topic specific monitoring strategies for:
 - Benthic Communities, Scour and Sedimentation; and
 - Marine and diadromous fish.

Plan Audience

This PEMP- OfTI 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- OfTI.

Compliance with the PEMP- OfTI 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- OfTI will be available from the following locations:

- ICOL's Project Office, 5th Floor, 40 Princes Street, Edinburgh, EH2 2BY;
- 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
CaP	Cable Plan
AIS	Automatic Identification System
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
ES	Environmental Statement
EMF	electromagnetic fields
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
MEDIN	Marine Environmental Data and Information Network
ML	Marine Licence
MD-LOT	Marine Directorate - Licensing Operations Team
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-GS	Project Environmental Monitoring Programme – Generating Station
PEMP- OfTI	Project Environmental Monitoring Programme – Offshore Transmission Infrastructure
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)
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 carried 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 23 rd August 2023 and amended on 9 th 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) in order to maximise efficiencies whilst minimising environmental impacts. The 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 Consent, Generating Station (GS) Marine Licence, and OfTI Marine Licence for the revised design were granted by Scottish Ministers on 17th June 2019. The Section 36 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). In 2019 a revised Marine Licence was granted for the OfTI connecting the landfall location, near Cockenzie, East Lothian, and the Inch Cape Offshore Wind Farm. A varied Marine Licence (MS-00010593), to capture changes to deposit quantities and revision to the Offshore Export Cable Corridor coordinates, was granted 9th November 2023.

A separate Marine Licence (MS-00010672 dated 15th January 2024) has also been granted for Additional Landfall Works to facilitate the construction of the export cables through the seawall.

1.2 Plan Objectives

This OfTI Project Environmental Monitoring Programme (PEMP- OfTI) has been prepared to address the specific requirements of the relevant conditions in the OfTI Marine Licence (Condition 3.2.2.18). The conditions must be discharged through approval of the Scottish Ministers prior to the commencement of offshore construction, which includes the approval of this PEMP- OfTI.

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.

In line with Condition 3.2.2.18 of the OfTI Marine Licence, '*monitoring may also serve the purpose of*

verifying key predictions in the Application. In the event that further potential adverse environmental effects are identified, for which no predictions were made in the Application, the Licensing Authority may require the Licensee to undertake additional monitoring'. Therefore, the PEMP-OfTI 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.

The relevant conditions setting out the requirement for the PEMP- OfTI approval, and which are to be discharged by the PEMP- OfTI are presented in full in Table 3.1, below.

1.3 Linkages with other Consent Plans and Consent Conditions

The consent conditions require that the development of the PEMP- OfTI 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 repeated across consent plans, rather, where pertinent information is available in linked consent plans, the relevant consent plans are referred to. The plans detailed below are not required for approval of this PEMP- OfTI but are provided for ease of reference.

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

Reference	Description and relevance to the PEMP- OfTI
Construction Environmental Management Plan (CEMP) IC02-INT-EC-OFC-007-INC-PLA-001	The CEMP outline 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 – Export Cable (CaP-EC) IC02-INT-EC-OFC-012-INC-PLA-002	The CaP-EC 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 export cable.
Piling Strategy – Offshore Substation Platform (PS-OSP) IC02-INT-EC-OFC-005-INC-STR-001	The PS-OSP 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.

Reference	Description and relevance to the PEMP- OfTI
Vessel Management and Navigational Safety Plan (VM&NSP) IC02-INT-EC-OFC-008-INC-PLA-001	<p>The VM&NSP informs how vessel management will be coordinated, particularly during construction but also during operation.</p> <p>The VM&NSP must, as far as reasonably practicable, be consistent with the PEMP.</p>
Operation and Maintenance Programme (OMP)	<p>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.</p> <p>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.</p>
Fisheries Management and Mitigation Strategy (FMMS) IC02-INT-EC-OFC-018-INC-STR-002	<p>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 set out the approach to fisheries liaison and mitigation during the construction of the Development.</p>

1.4 Document Structure

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

Table 1.2: PEMP- OfTI 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- OfTI. It also sets out the purpose, objectives and scope of the PEMP- OfTI and sets out the process for making updates and amendments.
2	Wind Farm and OfTI Overview	Overview of the Project as a whole.

Section No	Section Title	Summary of Content
3	Consent Conditions & Environmental Statement 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.
0	Environmental Monitoring of the OfTI	<p>Provides the required details in relation to each topic monitoring for the OfTI, from pre-construction to decommissioning, for:</p> <ul style="list-style-type: none"> - Marine Mammals; - Commercial Fisheries; - Marine and Diadromous Fish; and - Benthic Communities, Scour and Sedimentation.
6	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.

1.5 Document Control and Management of Change

This PEMP- OfTI 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- OfTI; 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 or not formal consultation will be required).
4. If change is considered non-material, ICOL will provide an updated PEMP- OfTI for MD-LOT to review, approve and make available.

Or:

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

2 Wind Farm and OfTI Overview

2.1 Project Description

The Inch Cape Offshore 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 km² 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 Cable Corridor (ECC) will contain the Offshore Export Cables. The Offshore Export Cable Corridor will consist of two 220 kV export cables approximately 85 km long, between the landfall point at Cockenzie in East Lothian and the boundary of the Development Area, and 1.4 km across at the widest point, reducing to approximately 250 m at the landfall.

The location and extent of the Development Area and Offshore Cable Corridor is shown in Figure 2.1.

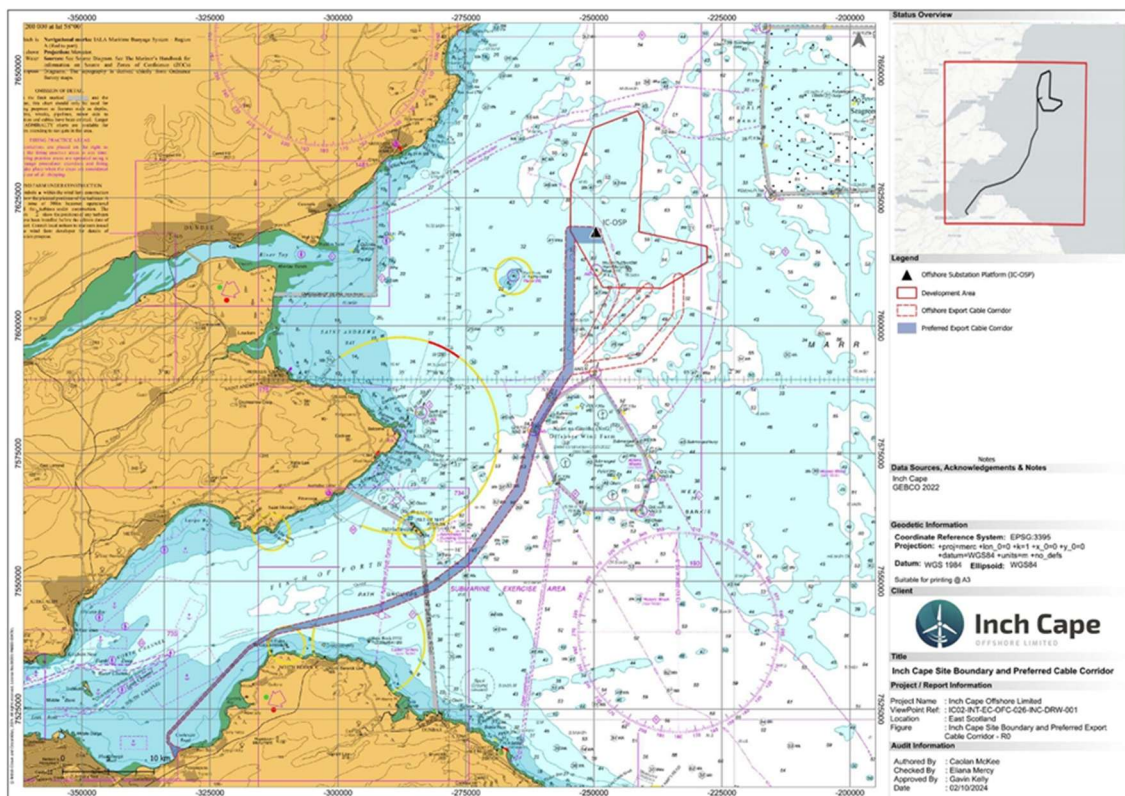


Figure 2.1: Project Location

2.2 Timing of Construction Works

Offshore construction is expected to commence April 2025 (at the landfall) and is anticipated to take over two years, running to August 2027. These dates are subject to change. Details of the full programme for the construction works are provided in the Construction Programme (CoP) (IC02-INT-EC-OFC-004-INC-PRG-001).

3 Consent Conditions & EIAR Compliance

At the time of submission of this PEMP- OfTI, the Inch Cape project benefits from the following key consents:

- Section 36;
- Generating Station (GS) Marine Licence;
- The OfTI Marine Licence; and
- Additional Landfall Works Marine Licence.

This PEMP- OfTI has been prepared to satisfy the criteria of the OfTI Marine Licence condition 3.2.2.18 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 be constructed in accordance with the licence, the Application and supporting ES and EIAR and related documents. A summary of the receptors sensitivity and monitoring proposed at the ES and EIAR are presented in Section 0, for each relevant environmental and social receptor addressed in this plan. This PEMP- OfTI, and the remaining consent plans have been put together considering the commitments made on the ES and EIAR and corresponding consent conditions.

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

Condition Document	Condition Reference	Condition Text	Relevant Section of this PEMP- OfTI
MS-00010593 Marine Licence Offshore Transmission Infrastructure	3.2.2.18	<p>The Licensee must, no later than six months prior to the Commencement of the Works, submit a PEMP, in writing, to the Licensing Authority for its 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 organisations as required at the discretion of the Licensing Authority.</p>	<p>This document sets out the PEMP- OfTI for approval by Scottish Ministers.</p>
		<p>The PEMP must be in accordance with the Application as it relates to environmental monitoring.</p>	<p>See Section 0</p>
		<p>The PEMP must set out measures by which the 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 Licensing Authority. Lifespan in this context includes pre-construction, construction, operational and decommissioning phases.</p>	<p>See Section 0</p>

Condition Document	Condition Reference	Condition Text	Relevant Section of this PEMP- OfTI
		<p>The Licensing Authority must approve all initial methodologies for the above monitoring, in writing and, where appropriate, in consultation with FTRAG referred to in condition 3.2.2.19 of this licence.</p>	<p>This document sets out the environmental monitoring methodologies within the PEMP- OfTI for approval by Scottish Ministers.</p>
		<p>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.</p>	<p>See Section 0 and Section 6</p>
		<p>In the event that further potential adverse environmental effects are identified, for which no predictions were made in the Application, the Licensing Authority may require the Licensee to undertake additional monitoring.</p>	<p>N/A at this stage</p>

Condition Document	Condition Reference	Condition Text	Relevant Section of this PEMP- OfTI
		<p>The PEMP must cover, but not be limited to, the following matters:</p> <p>a. Pre-construction, construction (if considered appropriate by the Licensing Authority) and post-construction monitoring or data collection as relevant in terms of the Application, and any subsequent monitoring or data collection for:</p> <ol style="list-style-type: none"> 1. Marine Mammals; 2. Commercial Fisheries; 3. Marine fish; 4. Diadromous fish; 5. Benthic communities; and 6. Seabed scour and local sediment deposition. <p>b. The participation by the Licensee to contribute to data collection or monitoring of wider strategic relevance, identified and agreed by the Licensing Authority.</p>	<p>This PEMP- OfTI presents the planned monitoring for the relevant environmental considerations.</p> <p>Marine Mammals – Section 5.2</p> <p>Commercial Fisheries – Section 5.3</p> <p>Marine and Diadromous Fish – Section 5.4</p> <p>Benthic Communities, Scour and Sedimentation – Section 5.5</p>
		<p>Due consideration must be given to the ScotMER programme, or any other successor programme formed to facilitate these research interests.</p>	<p>See Section 0</p>

Condition Document	Condition Reference	Condition Text	Relevant Section of this PEMP- OfTI
		<p>Any pre-consent monitoring or data collection carried out by the 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 Licensing Authority.</p>	See section 0
		<p>The PEMP is a live document which will be regularly reviewed by the Licensing Authority, at timescales to be determined by the Licensing Authority to identify the appropriateness of ongoing monitoring. Following such reviews, the Licensing Authority may, in consultation with the FTRAG, require the Licensee to amend the PEMP and submit such an amended PEMP, in writing, to the 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 Licensing Authority.</p>	See section 1.5

Condition Document	Condition Reference	Condition Text	Relevant Section of this PEMP- OfTI
		<p>The Licensee must submit written reports and associated raw and processed data of such monitoring or data collection to the Licensing Authority at timescales to be determined by the 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.</p>	See Section 6
		<p>Subject to any legal restrictions regarding the treatment of the information, the results are to be made publicly available by the Licensing Authority, or by such other party appointed at its discretion.</p>	See Section 6
		<p>The Licensing Authority may agree, in writing, that monitoring may be reduced or ceased before the end of the lifespan of the Works.</p>	This PEMP is a 'live document' and will be regularly revised as discussed in Section 1.5

4 Consultation

An overview of relevant (i.e., consultation that directly influences the content of these documents, rather than general discussions) pre-submission consultation undertaken on this plan is outlined in Table 4.1.

Table 4.1: Pre-submission consultation

Consultee	Details of Consultation	Relevant Consultation/ Actions Taken
FTRAG group	<p>Main group FTRAG meeting. Also discussed fish and benthic ecology topics in more detail.</p> <p>Minutes available here: http://www.marine.gov.scot/ml/forth-tay-regional-advisory-group-ftfrag</p>	<p>Commercial fisheries monitoring: Agreement that commercial fisheries monitoring would be more appropriately addressed in the context of the FMMS. (28/01/2020)</p> <p>Scour monitoring: Agreement that it was appropriate for any scour monitoring requirement to be led by engineering requirements rather than any other driver. (28/01/2020)</p> <p>Fish monitoring: Overall agreement that fish monitoring should focus on strategic studies, rather than project specific monitoring. (28/01/2020)</p> <p>Diadromous fish regional monitoring was discussed in detail though no agreements reached. Action on Marine Scotland Science to look into ScotMer programme that may be suitable and that developers could input into. (28/01/2020 and 09/12/2020)</p>
FTRAG group	<p>FTRAG marine Mammal sub-group.</p> <p>Minutes available here: http://www.marine.gov.scot/ml/forth-tay-regional-advisory-group-ftfrag</p>	<p>Photo ID programme discussed in detail and approach agreed for the 2020-2024 campaign.</p>

Consultee	Details of Consultation	Relevant Consultation/ Actions Taken
NatureScot	Meeting with NatureScot to discuss the underwater noise assessment for the OSP and pilling strategy	ICOL presented the revised underwater modeling, assessment of effects on marine mammals (PTS and behavioral), proposed mitigations and conclusion that no detrimental effect to Favourable Conservation Status is anticipated. Mitigations included soft start and ADD. No specific monitoring was proposed during the pilling works.

5 Environmental Monitoring for the OfTI

5.1 Introduction and Overview to Marine Monitoring

This section describes the proposed monitoring approach for each ecological receptor to meet the requirements of the OfTI Marine Licence condition 3.2.2.18. Further monitoring for the Development will be proposed as part of the monitoring programme for the wind farm generating station, the PEMP-GS.

This PEMP covers monitoring during pre-construction, construction and operational phase of the development. 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 Marine Mammals

5.2.1 Summary of Marine Mammal Assessment

The Marine Mammals Chapter of both the 2013 ES and 2018 EIAR (Chapter 14 and Chapter 10, respectively) assessed potential effects to key marine mammals receptors, as follows:

- 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*).

The main concern for marine mammals is in relation to potential effects in response to noise from pile driving. The potential for auditory injury and behavioural responses arising from construction of the OSP were assessed quantitatively in the 2018 EIAR (ICOL, 2018) and were modelled and reassessed in the scope of the PS – OSP (IC02-INT-EC-OFC-005-INC-STR-001).

Piling at the OSP comprises eight small (< 2.6 m diameter) pin piles, to be completed within a short time period (likely 48 hours). Mitigation proposed includes 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 – OSP 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, and possibly displaced for most species. The predicted potential effects to marine mammals are anticipated to be negligible.

Across all species, the fact that the disturbance caused by piling will only occur within a two-days window means that there is expected to be no change to the vital rates (survival and reproduction) of the disturbed individuals (Booth et al. 2019) and thus no change to the population size or trajectory of any marine mammal species. Any behavioural disturbance effects will be short-term and reversible.

Bottlenose dolphins were the only species for which disturbance was predicted to affect close to 10% of the Management Unit population. However, this estimate is highly conservative and previous research shows little to no evidence of bottlenose dolphin displacement in response to similar activities.

5.2.2 Proposed Approach to Monitoring

Based on the assessment of the potential for auditory injury and behavioural responses from the construction of the OSP, which indicated negligible effects, no additional monitoring for marine mammals is proposed within the scope of the OfTI. This is due to the limited piling scope of the OSP, which involves installing 8 pin piles over a short period (48 hours).

Project specific monitoring will be included within the scope of the wind farm generating station, which consists of up to 72 foundations for wind turbine generators. The approach to monitoring will be developed, discussed, and agreed upon through the PEMP-GS.

Therefore, the PEMP- OfTI will be updated as required with any future monitoring requirements, once agreed with MD-LOT and their advisors.

5.2.2.1 Project Specific Monitoring

Digital Aerial Surveys (DAS) pre-construction

A series of Digital Aerial Surveys (DAS) have been undertaken across the Development Area and a 4 km buffer. As shown in Figure 2.1, the ECC overlaps with the Development Area, at the location where the OSP will be installed. These surveys integrate with the DAS being completed by other Forth and Tay wind farm developers.

ICOL carried out monthly surveys from April 2019 to March 2020, with Neart na Gaoithe Offshore Wind Farm and Seagreen Offshore Wind Farm, covering the Inch Cape area between May and September 2020. A second pre-construction campaign is currently underway that began in March

2024 to and will end February 2025.

While these surveys are primarily for monitoring ornithological interests, detections of marine mammal species, locations and sightings rates will be processed and presented in survey reports. These data may provide a useful pre-construction validation of the baseline abundance and distribution of marine mammals with respect to the species present and any seasonal variation in abundance and distribution.

Digital aerial surveys may be included in the monitoring plan for the operational phase of the wind farm and may be useful in informing the extent of any changes in marine mammal abundance over the intervening period. However, the statistical power of these data to detect such a change over and above natural levels of variation may be limited. Any future DAS requirements will be discussed as part of the ornithology monitoring scope, to be agreed through the PEMP-GS.

5.2.2.2 Regional and Strategic Monitoring

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

ICOL has part-funded a six-year programme (between 2020 and 2025, inclusive) of bottlenose dolphin photo-ID survey work which has been undertaken by the University of St Andrews in conjunction with the University of Aberdeen, for monitoring of the east Scotland population as a whole. The programme included five years of field work with a final year (2025) of overall data analysis, interpretation and reporting. This work was undertaken during the pre-construction phase for Inch Cape. The results are expected to be available in 2025.

5.3 Commercial Fisheries

5.3.1 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, 2018).

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 will lay out guidelines to address potential interactions with fishing activity for vessels operating in and around the site and transiting to the site, and set out the approach to fisheries liaison and mitigation during the construction of the Development.

5.3.2 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 over trawl surveys will be considered in the CaP - EC (IC02-INT-EC-OFC-012-INC-PLA-002). The survey scope and methodologies will be discussed with the local fishing industry and agreed with the Licencing Authority following completion of the rock protection works and once as-built information is available.

Commercial fisheries monitoring will comprise:

- 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.

In addition, as noted in Section 5.4.2, 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.

5.3.3 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 (from 2018 to April 2025) and construction (estimated to extend from April 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 FTFCWG, and results will be used to inform updates to the ICOL FMMS.

5.4 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 is for the Development as a whole, i.e. the GS and OfTI.

5.4.1 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, 2018).

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. The significance of the effect for the majority of the potential impacts along the Offshore Export Cable were negligible/minor, minor or minor/moderate and not significant. Behavioural responses to electromagnetic fields (EMF) associated with cabling on SAC qualifying species was considered to be moderate and not significant (ICOL, 2013).

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

5.4.2 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.

While no project specific survey is proposed, ICOL will continue to work with Marine Directorate and FTRAG to identify suitable opportunities to support national or regional initiatives. In line with Section 36 Condition 24, GS Marine Licence Condition 3.2.2.21 and OfTI ML Condition 3.2.2.18, 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.

5.5 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 is for the Project as a whole, i.e. the GS and OfTI.

5.5.1 Summary of Benthic Ecology Assessment

The Benthic Ecology Chapter 12 of the 2013 ES (ICOL, 2013) assessed the impacts to key benthic receptors groups. Along the Offshore Export Cable Corridor, the majority of the potential impacts were predicted to be negligible/minor, minor or minor/moderate and not significant. Introduction of non-indigenous species (NIS) was assessed as having a moderate non-significant effect on habitats.

Stony habitat, recorded as present in the Offshore Export Cable Corridor, has the potential to be listed under the EC Directive 92/43/EEC (Habitats Directive) as part of the feature: Annex I reef. Rocky habitats associated with the Isle of May were investigated via seabed video transects to acquire information on potentially sensitive receptors, including potential Annex I geogenic reefs. Selected patches of cobbles identified within the Offshore Export Cable Corridor were assessed to have low resemblance to Annex I reef, based on several key parameters of 'reefiness', including composition and diameter of the cobbles, elevation, extent and biotic composition (ICOL, 2013).

No evidence of any Annex I biogenic reef features were observed during any of the surveys carried out across the Development Area and Offshore Export Cable Corridor, 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.

The Offshore Export Cable Corridor area also experiences regular background levels of seabed disturbance, therefore Annex I reef habitats are considered unlikely to develop in this area.

5.5.2 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 significance of the effects did not exceed minor/moderate (and not significant) for any of the impacts assessed. 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.

5.5.3 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 literature review and site-specific survey involving grab and seabed video surveillance. The ES concluded no significant impacts to benthic ecology receptors are anticipated as a result of the Development, and no additional mitigation measures or monitoring were proposed.

In addition to the pre-consent surveys, ICOL will review and interpret geophysical data collected to inform the Offshore Export Cable engineering design. The survey methods include a combination of multibeam echosounder and high-resolution side scan sonar. It is proposed that the geophysical survey outputs from the Offshore Export Cable Corridor will be reviewed and interpreted to confirm the baseline conditions in relation to potential Annex I reef features. In the event that acoustic signatures synonymous with potential reef presence are identified from the geophysical data, it is proposed that these features/signature would be avoided or “micro-sited” where feasible, to mitigate disturbance of potential Annex I features. A summary of the findings will be shared with MD-LOT and NatureScot in due course.

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.

5.5.4 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 OSP and 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 Cable Plan for the Export Cable (IC02-INT-EC-OFC-012-INC-PLA-002). 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 Reporting

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.

The survey results will be used to inform future monitoring and will be used to discharge relevant Consent conditions.

7 References

Marine Scotland, 2017. Inch Cape Offshore Wind Farm, Scoping Opinion.

ICOL (2013) Inch Cape Environmental Impact Assessment Report.

ICOL (2018). Inch Cape revised Environmental Impact Assessment Report.

Booth, C. G., F. Heinis, and H. J. 2019. Updating the Interim PCoD Model: Workshop Report - New transfer functions for the effects of disturbance on vital rates in marine mammal species. Report Code SMRUC-BEI-2018-011, submitted to the Department for Business, Energy and Industrial Strategy (BEIS), February 2019 (unpublished).

Appendix A – Benthic, Scour and Sedimentation Monitoring Strategy



Appendix B – Marine and Diadromous Fish Monitoring Strategy