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

## **Marine Mammals Monitoring Strategy**

## Inch Cape Acceptance

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27/06/2025	01	PEMP Appendix	First issue for PEMP-GS	EMA

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## Acronyms & Abbreviations

Acronym	Term
ADD	Acoustic Deterrent Devices
AIS	Automatic Identification System
BND	Bottlenose Dolphins
CaP	Cable Plan
CEMP	Construction Environmental Management Plan
CES	Coastal East Scotland
CMS	Construction Method Statement
CoP	Construction Programme
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

## Acronyms & Abbreviations

Acronym	Term
FTRAG-MM	Forth and Tay Regional Advisory Group – Marine Mammals
GS	Generating Station
IAC	Inter-array cable
IAMMWG	Inter-Agency Marine Mammal Working Group
ICOL	Inch Cape Offshore Limited
km	Kilometre
kV	Kilovolts
MCC	Marine Coordination Centre
MD-LOT	Marine Directorate - Licensing Operations Team
MD-SEDD	Marine Directorate-Science, Evidence, Data and Digital
MEDIN	Marine Environmental Data and Information Network
ML	Marine Licence
MMO	Maritime Management Organisation
MPA	Marine Protected Area
MS-LOT	Marine Scotland - Licensing Operations Team (now MD-LOT)
MSS	Marine Scotland Science
MU	Management Unit
MW	Megawatt

## Acronyms & Abbreviations

Acronym	Term
OFLO	Offshore Fisheries Liaison Officer
OfTI	Offshore Transmission Infrastructure
OMP	Operational and Maintenance Programme
OSP	Offshore Substation Platform
OWF	Offshore Wind Farm
PAM	Passive Acoustic Monitoring
PEMP	Project Environmental Monitoring Programme
PEMP- OfTI	Project Environmental Monitoring Programme – Offshore Transmission Infrastructure
PEMP-GS	Project Environmental Monitoring Programme – Generating Station
PTS	Permanent Threshold Shift
S36	Section 36
SAC	Special Area of Conservation
ScotMER	Scottish Marine Energy Research
SFF	Scottish Fishermen’s Federation
SMU	Seals Management Unit
SNH	Scottish Natural Heritage (now NatureScot)
SPA	Special Protection Area

## Acronyms & Abbreviations

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Acronym	Term
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 produced in 2013 to accompany the application for Consents of Development (granted in 2014).
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 <sup>rd</sup> August 2023 and amended on 9 <sup>th</sup> 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

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**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.

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**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.

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**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.

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**(The) Consents** Collective term used to describe the Section 36 consents and Marine Licences issued to ICOL.

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## 1 Executive Summary

This document outlines the rationale and specification of the proposed marine mammals monitoring programme for the Inch Cape Wind Farm Development Generating Station.

Requirements for marine mammals monitoring form part of the conditions attached to the Section 36 consent and the Marine Licences for the Inch Cape Offshore Wind Farm Development. The monitoring aims to enhance understanding of marine mammal responses to construction activities, and to validate the assumptions made in environmental assessments supporting the consent application.

A review of the marine mammals baseline and assessment of impacts resulting from the Development was undertaken based on the 2018 Environmental Impact Assessment Report (EIAR) and Habitats Regulations Assessment (HRA) (ICOL, 2018a; ICOL, 2018b), Variation Report submitted in 2022 (ICOL, 2022) and were modelled and reassessed in the scope of the PS-GS (IC02-INT-EC-OFC-005-INC-STR-002). These were considered alongside key drivers for monitoring as discussed at meetings held with the Forth and Tay Regional Advisory Group – subgroup marine mammals (FTRAG-MM) since 2015.

The most common marine mammal species recorded off the Firths of Forth and Tay include minke whale, bottlenose dolphin, white-beaked dolphin, harbour porpoise, grey seal and harbour seal. The key effects on marine mammals arising from the Development are in relation to potential for auditory injury and behavioural responses in response to noise from pile driving. Piling activities at the GS will be required for the installation of the substructures for 72 Wind Turbine Generators comprising 54 monopiles and 18 jacket foundations.

The monitoring efforts are proposed to be focused on bottlenose dolphins due to the lack of data on their responses to offshore wind farm pile driving and the proximity of the Development Area to key habitats of the Coastal East Scotland population. This offers an opportunity to improve impact assessments and validate environmental impact assessment findings.

The following monitoring approach is proposed:

- Site specific monitoring, comprising passive acoustic monitoring (PAM) array to monitor detections of dolphins prior, during and after the WTG piling works at Inch Cape. The array will comprise six stations, deployed near the coast to maximize detections of the coastal bottlenose dolphins.
- Contribution to regional monitoring, particularly the bottlenose dolphin Photo-ID project, which intends to better understand the residency, fecundity and survival of bottlenose dolphins in the Forth and Tay.

## 2 Introduction

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

### 2.2 Purpose of this document

This document outlines the rationale and specification of the proposed marine mammals monitoring for the Wind Farm Generating Station.

This document has been produced to communicate stakeholders the proposed approach to monitoring and inform the Project Environmental Monitoring Programme (PEMP) for the Generating Station, the PEMP-GS, as required by the Inch Cape Offshore Wind Farm Section 36 Consent conditions 24 and 25, Offshore Energy Generating Station (GS) Marine Licence (MS-00010140) conditions 3.2.2.21 and 3.2.2.22. These include conditions relating to the Forth & Tay Regional Advisory Group (FTRAG) which will require to be consulted with respect to monitoring.

A separate document was prepared to address the marine mammals monitoring proposal within the scope of the OfTI, in accordance with the OfTI Marine Licence - the PEMP-OfTI (IC02-INT-EC-OFC-017-INC-PLA-001).

### 2.3 Developing the Marine Mammal Monitoring Strategy

In line with S36 consent and Marine Licence conditions, the marine mammal monitoring aims to monitor environmental impacts to verify key predictions from the environmental assessments supporting the consent application for the Wind Farm, while contributing to wider strategic relevance monitoring.

The proposed approach to marine mammal monitoring takes into consideration the following:

- The baseline condition of the Development Area and relevant receptors defined in the EIAR 2018, and recent publicly available data.
- The predictions of the impact assessment for each relevant receptor, and degree of certainty in these predictions, made within the revised 2018 EIAR (ICOL, 2018a), supporting documentation for the 2022 variation (ICOL, 2022a), and considered in the scope of the Piling Strategy for the Generating Station (IC02-INT-EC-OFC-005-INC-STR-002).
- The findings of the Marine Mammals Habitats Regulations Appraisal and Information to Support Appropriate Assessment (ICOL, 2018b).
- The findings of the 2019 Appropriate Assessment (Marine Scotland, 2019).
- The monitoring commitments outlined in the revised 2018 EIAR (ICOL, 2018a).
- The outcomes/ recommendations of published reports on monitoring at other offshore wind farm sites in the UK (and overseas)
- Advice and discussions from the Forth and Tay Regional Advisory Group Marine Mammals Sub-Group (FTRAG-MM).
- The outcomes of the independent review of post-consent environmental monitoring data undertaken on behalf of the Marine Management Organisation (MMO) (MMO, 2014a) and the MMO's subsequent recommendations (MMO, 2014b) which state monitoring requirements should be:
  - Focused on producing validating predictions in terms of the likely levels and duration of noise animals may be exposed to during construction, particularly validating noise exposure at the ranges predicted for injury and disturbance (often many tens of kilometres from the source);
  - Be coordinated with the development of a registry for impulsive underwater noise to identify potential cumulative effects. Each project should also submit information (e.g. a simple record of the day, time and location of any piling) for inclusion within the noise registry; and
  - Consider the influence of environmental covariates on marine mammals including spatial and temporal design of monitoring to account for natural variability.

### 3 The Development

#### 3.1 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<sup>2</sup> 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 3.1.

Offshore construction is currently expected to commence in June 2025 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.

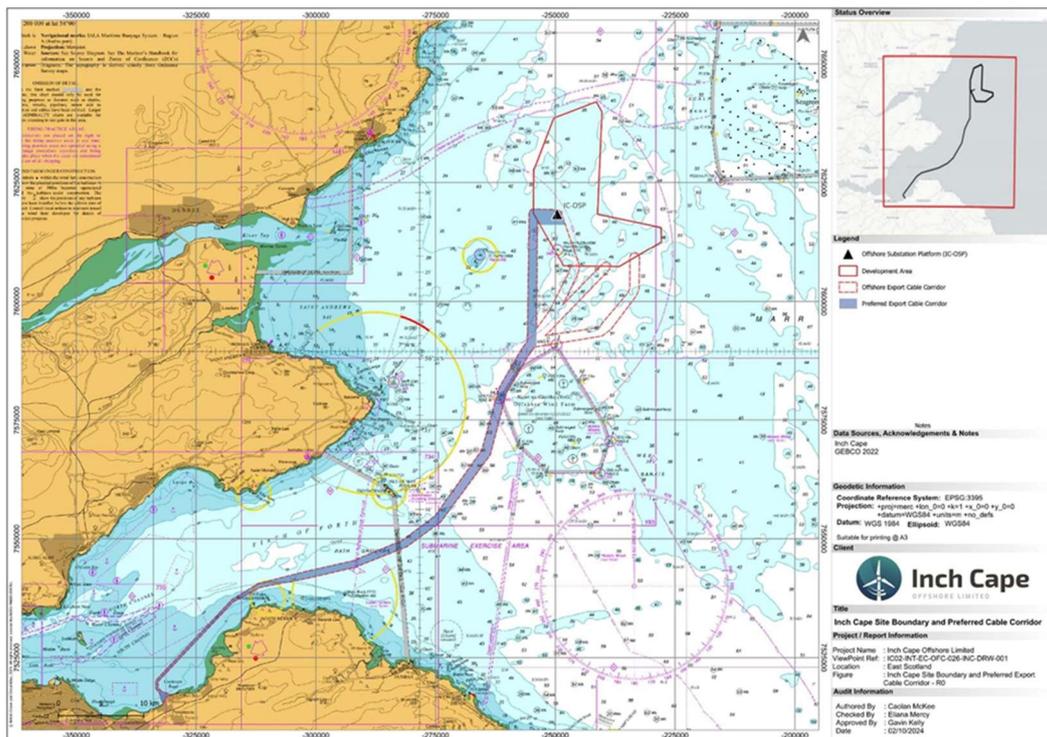


Figure 3.1: Project Location

## 4 Baseline Summary

This section provides a brief overview of the marine mammal baseline conditions at the Inch Cape Offshore Wind Farm, as outlined in the 2018 EIAR (ICOL, 2018a), HRA (ICOL, 2018b), Piling Strategy for the Generating Station (PS-GS), and updated using recent publicly available information.

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 reference population for these species is presented in Table 4.1, derived using published data available in the public domain. Harbour porpoise is the most common species known to be present within the Development Area. Minke whales are highly seasonal in the area. Sightings of minke whales in the Southern Trench MPA are highest during June to October inclusive (NatureScot, 2020), but minke whales are present in lower numbers year round. Bottlenose dolphins, whilst commonly recorded off the Firths of Forth and Tay, are typically recorded near to the coast rather than within the Development Area. Recent monitoring for bottlenose dolphins on the east coast of Scotland confirmed that approximately 50% of the Coastal East Scotland (CES) Management Unit (MU) bottlenose dolphin population uses the Tayside and adjacent waters (Cheney *et al.*, 2024). The distribution of the CES MU has also experienced further expansion south, into Northeast England (Cheney *et al.*, 2024).

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).

**Table 4.1: Marine mammal reference population abundance estimate (MU = Management Unit; SMU = Seal Monitoring Unit)**

Species	Reference population	Abundance	Reference
		Estimate	
<b>Minke whale</b>	Celtic and Greater North Seas MU	20,118	Inter-Agency Marine Mammal Working Group (IAMMWG) (2023)
	UK portion of MU	10,288	
<b>Bottlenose dolphin</b>	East coast population	226	Cheney <i>et al.</i> (2024)
<b>White-beaked dolphin</b>	Celtic and Greater North Seas MU	43,951	IAMMWG (2023)
	UK portion of MU	34,025	
<b>Harbour porpoise</b>	North Sea MU	346,601	IAMMWG (2023)
	UK portion of North Sea MU	159,632	
<b>Grey seal</b>	East Scotland SMU	10,783	Scaled SCOS (2024) August counts
<b>Harbour seal</b>	East Scotland SMU	364	

## 5 Impact Assessment Summary

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). As noted in Section 2.2, this document addresses the monitoring in relation to the GS. A separate document has been prepared to address the proposed monitoring for the OfTI, which includes the installation of the export cables and Offshore Substation Platform (OSP).

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 (instantaneous PTS will be mitigated through a mitigation protocol to be agreed through the PS-GS), 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.

It is predicted that the GS pile driving, either alone or in combination with other plans/projects, will not cause deterioration of the habitats of, or significant disturbance to, the qualifying species (bottlenose dolphin, grey seal, harbour seal). The GS pile driving (alone or in combination with other plans/projects) will not therefore adversely affect the integrity of the sites (Berwickshire and North Northumberland Coast SAC, Firth of Tay and Eden Estuary SAC, Isle of May SAC, Moray Firth SAC). Whilst it is unlikely that the Firth of Tay and Eden Estuary SAC will achieve favourable conservation status for harbour seals in the long term, the impacts associated with the GS pile driving are not predicted to have a bearing on this outcome.

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), alone or in combination, will not cause adverse effects on the integrity of any SAC designated for marine mammal species (ICOL, 2025).

## 6 Monitoring Commitments and Relevant Conditions

### 6.1 Monitoring Commitments in the 2018 EIAR

The 2018 EIAR informed that the residual effects, taking account of embedded mitigation, were predicted to be of minor significance. Therefore, no additional mitigations or monitoring was proposed as part of the EIAR 2018.

The 2013 ES recognized that pre-, during and post-construction monitoring would provide valuable data regarding the predicted to actual effects of the Project on marine mammal species. And proposed working with Marine Directorate and other stakeholders to share marine mammal data, to inform and further develop best practice measures.

### 6.2 Section 36 Consent and Marine Licence conditions

The S36 Condition 24 and GS Marine Licence condition 3.2.2.21 provide the requirement for the PEMP, as described below:

- The Company/ Licensee must, no later than six months prior to the Commencement of the Development/ Works, submit a Project Environmental Monitoring Programme (“PEMP”), in writing, to the Scottish Ministers/ Licensing Authority for their written approval. Such approval may only be granted following consultation by the Scottish Ministers/ Licensing Authority with SNH, RSPB Scotland, WDC, SFF, FMS and any other environmental advisors or organisations as required at the discretion of the Scottish Ministers/ Licensing Authority. The PEMP must be in accordance with the Application as it relates to environmental monitoring.
- The PEMP must set out measures by which the Company/Licensee must monitor the environmental impacts of the Development. Monitoring is required throughout the lifespan of the Development where this is deemed necessary by the Scottish Ministers/ Licensing Authority. Lifespan in this context includes pre-construction, construction, operational and decommissioning phases.
- The Scottish Ministers/ Licensing Authority must approve all initial methodologies for the above monitoring, in writing and, where appropriate, in consultation with the FTRAG.
- 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 Development. 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 Scottish Ministers/ Licensing Authority may require the Company/Licensee to undertake additional monitoring.
- 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; [Generating Station only]
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.

- Due consideration must be given to the Scottish Marine Energy Research (“ScotMER”) programme, or any successor programme formed to facilitate these research interests.
- Any pre-consent monitoring or data collection carried out by the Company/Licensee to address any of the above issues may be used in part to discharge this condition subject to the written approval of the Scottish Ministers/ Licensing Authority.
- The PEMP is a live document which will be regularly reviewed by the Scottish Ministers/ Licensing Authority, at timescales to be determined by them to identify the appropriateness of on-going 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 their 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.
- 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 them. Consideration should be given to data storage, analysis and reporting and be to Marine Environmental Data and Information Network standards.
- 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 their discretion.

- The Scottish Ministers/ Licensing Authority may agree, in writing, that monitoring may be reduced or ceased before the end of the lifespan of the Development.

The S36 Condition 25 and GS Marine Licence condition 3.2.2.22 also set up the requirements for ICOL participation at the Forth and Tay Regional Advisory Group, the FTRAG, as described below:

The Company/Licensee must participate in the Forth and Tay Regional Advisory Group (“FTRAG”) or any successor group, established by the Scottish Ministers/ Licensing Authority for the purpose of advising the Scottish Ministers/ Licensing Authority on research, monitoring and mitigation programmes for, but not limited to, ornithology, marine mammals, diadromous and commercial fish. The extent and nature of the Company’s/Licensee participation in the Regional Advisory Group is to be agreed by the Scottish Ministers/ Licensing Authority.

## 7 Consultation

Discussions regarding the requirements for marine mammals monitoring in the Forth and Tay began in 2015, with the formation of the Marine Mammals subgroup within the Forth and Tay Regional Advisory Group (FTRAG-MM). The FTRAG was set up to meet the requirements of the section 36 and associated marine licence conditions attached to consents granted for offshore wind farms in the Forth and Tay region. The FTRAG-MM include representatives from the Forth and Tay (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), and others.

Relevant consultations to the development of the marine mammals monitoring approach are provided in Table 7.1.

**Table 7.1: FTRAG-MM discussions on marine mammal monitoring**

Date	Details of Consultation	Relevant Consultation
<b>19<sup>th</sup> August 2015</b>	FTRAG-MM Meeting <sup>1</sup>	<p>Key species for monitoring discussed; bottlenose dolphin, harbour seals, grey seals, harbour porpoise, minke whale and white beaked dolphin.</p> <p>While it was acknowledged that harbour porpoise, minke whale, and white-beaked dolphins are likely to be displaced during piling operations within the Firth of Forth and Tay, it is unclear how changes to survivability and fecundity of such a wide-ranging species could be correlated back to displacement from / disruption within regions of the Firths of Forth and Tay from piling noise. For this reason, it was agreed these species would not be further considered for construction monitoring.</p>
<b>2<sup>nd</sup> December 2015</b>	FTRAG-MM Meeting <sup>1</sup>	<p>The group confirmed that the aim of any monitoring would be to detect changes in fecundity and survivability of the bottlenose dolphin (BND).</p> <p>Discussions with regards to monitoring requirements for grey seals were delayed, as a data gap review for behavioural responses in seals from piling noise was to be completed.</p> <p>The conclusion of the discussion on harbour seal monitoring from the first FTRAG - MM meeting was that if changes in the fecundity and survivability rates of harbour seal in response to piling related effects were to be studied, studies would be best concentrated upon the harbour seals of the Moray Firth. This is because this population is currently in growth and is well - studied with a robust baseline</p>

Date	Details of Consultation	Relevant Consultation
(confidence in estimated population parameters).		
<b>2<sup>nd</sup> July 2019</b>	FTRAG-MM Meeting <sup>1</sup>	<p>Monitoring proposals for adjacent F&amp;T Developers were presented (NnG and Seagreen). The approach focused on acoustic monitoring using deployment of C-POD devices to be compatible with the ongoing regional ECOMMAS monitoring study.</p> <p>Discussions on the ongoing BND Photo-ID project took place. MSS informed this was required to address population level questions and noted that funding was coming to an end in 2019. It was proposed that developers should consider the extension of this ongoing project.</p>
<b>30<sup>th</sup> January 2020</b>	FTRAG-MM Meeting <sup>1</sup>	<p>Updates on the monitoring proposals for adjacent F&amp;T Developers were presented (NnG and Seagreen), which included augmenting the existing ECOMMAS array, with deployment planned in 2019.</p> <p>A background on the bottlenose dolphin photo-ID surveys was presented, including a proposal to extend the study. The extension would build on the existing surveys in Moray Firth and Tay with additional survey effort in the Firth of Forth and engagement from other parties further South.</p>
<b>8<sup>th</sup> December 2020</b>	FTRAG-MM Meeting <sup>1</sup>	<p>Updates were provided on the Passive Acoustic Monitoring (PAM) works at Seagreen and NnG OWFs, and the bottlenose dolphin Photo-ID study. Information was provided that a citizen science collaborative project is being developed, to complement the systematic surveys data on individuals from the population occurring in areas south of the Tay Estuary.</p>
<b>21<sup>st</sup> November 2023</b>	FTRAG-MM Meeting <sup>1</sup>	<p>Updates were provided on the Passive Acoustic Monitoring (PAM) works at Seagreen and NnG OWFs, and the bottlenose dolphin Photo-ID study.</p> <p>It was clarified that the rationale for the BND Photo-ID did not aim to assess any direct impacts from the construction phase of the various WFs. A new PhD project started in October 2023, focusing on quantifying and understanding a major range expansion into northeast England. Underspending from 2020-2023 surveys would be allocated for 2024.</p>
<b>12<sup>th</sup> November</b>	FTRAG-MM Meeting <sup>1</sup>	<p>ICOL informed that a PEMP for the OfTI was submitted to MD-LOT, to be distributed for consultation in due course through MD-LOT process. No project specific monitoring was proposed due to limited piling scope for the OSP (8 pin piles, 10 hours). ICOL also presented an overview</p>

Date	Details of Consultation	Relevant Consultation
2024		<p>of the OSP piling strategy, including construction details, scenarios, modelling results and mitigations. It was informed that a report on Considerations to HRA was also submitted along with the PS-OSP.</p> <p>In relation to the GS, ICOL has engaged SMRUC to support. Consideration is being given to noise monitoring, bioacoustics, and continued support for strategic monitoring. A proposal with objectives, design, etc will be circulated for consultation.</p> <p>Updates were provided on the BND Photo-ID project. The final report for the 2023 data is to be delivered in spring 2025, including estimates of abundance, survival and birth rates through 2023. The project has partial funding from NatureScot through until 2029/2030 however are seeking interested parties who could fund the project further. Separate surveys funded by DEFRA conducted on the north east England coast have identified Scottish Animals using the area. Some of these animals have been seen on the Forth and Tay surveys in 2023 and 2024. This indicates that the Tay could be a key area connectivity between the edges of the range.</p> <p>The Citizen Fins project will continue as part of a PhD programme. Data collected will inform which areas of north east England to survey and inform the movement analysis associated with bottlenose dolphin range expansion.</p>
26 March 2025	FTRAG-MM Meeting <sup>1</sup>	<p>Inch Cape presented an overview of ICOL's approach to monitoring, in line with the Marine Mammal Monitoring Strategy REV 00 that was circulated to the FTRAG-MM on 17 March 2025.</p> <p>The monitoring efforts are proposed to be focused on BND, and include Site Specific Monitoring using Passive Acoustic Monitoring (PAM) array with focus on BND detection. In addition, a contribution to regional monitoring was proposed, through the bottlenose dolphin Photo-ID project.</p> <p>Pre-construction Digital Aerial surveys (DAS) have also collected data on marine mammals during monthly surveys undertaken in three campaigns of one year duration, in 2016/2017; 2019/2020 and 2024/2025.</p> <p>NatureScot was overall supportive of the PAM array proposal.</p> <p>SMRU highlighted the importance of giving continuity to the BND Photo ID project and raised a concern on co-funding.</p>

<sup>1</sup>FTRAG-MM meeting minutes are available here: <http://www.marine.gov.scot/ml/forth-tay-regional-advisory-group-ftfrag>

In addition to the consultation during the FTRAG-MM meetings, a previous version of this document (i.e. Marine Mammal Monitoring Strategy REV 00) was circulated to the FTRAG-MM members and other guest attendees on 17 March 2025. Table 7.2 below summarizes comments received through email after the FTRAG-MM call held on 26 March 2025.

**Table 7.2: Key comments received pertaining to Marine Mammals Monitoring Strategy Rev 00**

Date / Consultee	Summary	Response
27th March 2025 /  NatureScot	Regarding the PAM proposal, we are content that ICOL proceed with the PAM work ahead of the PEMP approval at ICOL's risk.	Noted.
31st March 2025 /  NatureScot	<p>In principle, the proposed marine mammal monitoring looks appropriate and is in line with the consent conditions, in particular the Section 36 condition 24 and Marine Licences conditions 3.2.2.21 and 3.2.2.18 (generating station and offshore transmission infrastructure, respectively), whereby the PEMP must “<i>set out measures by which the Company must monitor the environmental impacts of the Development</i>”, including for the purpose of “<i>verifying key predictions in the Application</i>”, and covering “<i>Pre-construction, construction (if considered appropriate by the Scottish Ministers) and post-construction monitoring or data collection as relevant in terms of the Application, and any subsequent monitoring or data collection for...Marine Mammals</i>”.</p> <p>Given the proximity of the Inch Cape Offshore Wind Farm to the key habitats of the Coastal East Scotland bottlenose dolphin population and the general lack of data on bottlenose dolphin responses to pile driving, the draft strategy has appropriately identified that bottlenose dolphin should be the focus for any marine mammal monitoring.</p> <p>The inclusion of both the PAM and photo-ID work is critical, as they inform separate parts of the EIA validation – i.e. the short-term impacts of piling (such as displacement) and the longer-term, regional-scale changes to the population. As EIA predictions are currently highly uncertain, validation is essential, both for the current project and to inform future</p>	Noted, no amendments are proposed.

Date / Consultee	Summary	Response
	developments.	
	Any site-specific DAS for marine mammals should align with the proposed ornithology monitoring, including post-construction DAS. These elements should be considered further in the forthcoming PEMP.	Post-construction DAS included in Section 8.2.1.2
	The coastal PAM array should enable any changes in detection rates of bottlenose dolphin and may also be able to detect changes in distribution and movement of animals in response to piling. This will, in our view, help validate the EIA/HRA predictions around short-term displacement of animals during piling and return times following piling events.	Noted, no amendments are proposed.
	The locations of the PAM detectors appear reasonable, though we recommend that advice from MD-SEDD is sought given their ECOMMAS / SPAN experience.	The PAM locations were selected based on knowledge of previous issues at ECOMMAS sites, and in consultation with local surveyors and the Port of Dundee. This should minimize the risk of device loss while maximizing the chance of dolphin detections.
	The array will not provide enough data to enable a dose-response curve for bottlenose dolphin to be determined. However, we recognise that this would require a substantially larger array and so we accept that this will not be an outcome of the monitoring.	Noted. Details on the PAM array design and analysis are presented in Section 8.2.2.
	The PAM array will also provide some information about harbour porpoise responses during piling, although we acknowledge that this is a secondary focus and the array has not been designed with this species in mind. We are content with this, given it was agreed that bottlenose dolphin should be the primary focus.	The porpoise detection work has been removed from the PAM data analysis scope as it was not the primary purpose of the survey.
	The PAM array will also be used to investigate the propagation of underwater noise in shallow coastal waters from piling. This is in addition to the specific underwater noise monitoring. This is reasonable, as it makes best use of the data collected, and will help	

Date / Consultee	Summary	Response
	<p>improve understanding in an area of high uncertainty (i.e. how piling noise propagates in shallow water).</p>	
	<p>The proposed schedule for the array seems appropriate, noting that if the timing of piling is extended, the array schedule may need to be adjusted to reflect any changes. Additionally, we noted that during the FTRAG-MM meeting (held on 26th March 2025), the post-construction period was stated as 9-12 months, rather than 12 months as per the draft strategy. A firm commitment regarding the length of post-construction monitoring will be required in the PEMP.</p>	<p>The revised schedule is proposed in Section 8.2.2.2.</p>
	<p>In relation to underwater noise monitoring, the specific approach to underwater noise monitoring for piling has not yet been determined. Once more is known about the approach, further discussion and engagement will be required. Regardless, we welcome the commitment to undertake underwater noise monitoring, which is particularly important for Inch Cape Offshore Wind Farm, given the large pile sizes and hammer energies, and will contribute to the validation of modelled predictions presented in the EIA. Results of the noise monitoring should also feed into the future development of the noise models, to help reduce uncertainty and improve the models.</p>	<p>Noted. The underwater noise monitoring will be undertaken as part of the Piling Strategy for the Generating Station. Details will be discussed in due course.</p>
	<p>In relation to contributions to the BND Photo Id:</p> <p>The purpose of this work is to contribute to the long-term study of population-level changes in the coastal bottlenose dolphin population. This will contribute to validation of population predictions in the EIA/HRA, including the iPCoD predictions of long-term impacts.</p> <p>The long-term dataset is critical for understanding trends in abundance and demographics in the Moray Firth SAC population and helps to inform management of the SAC. This understanding is also necessary for the completion of Appropriate Assessments for this European site.</p> <p>A full survey programme should be completed each year, for the 5-year survey cycle, on the basis that this</p>	<p>Noted. As discussed in Section 8.3.1, Inch Cape proposes to continue its contribution to the BND Photo-ID project for the next survey cycle. Discussions with University of St Andrews are ongoing.</p>

Date / Consultee	Summary	Response
<p><b>01 April 2025/</b></p> <p><b>Sea Mammal Research Unit (SMRU)</b></p>	<p>will be needed to detect any changes. Any reduction in effort may mean that the aim of validating the EIA predictions is not achieved.</p> <p>However, we recognise the rising costs of surveys, and the changes in the bottlenose dolphin population itself (such as range expansion), which necessitates additional survey effort. Further discussions with the FTRAG and MD-LOT/SEDD may be required.</p> <p>The SMRU at the University of St Andrews provided feedback on the Inch Cape Marine Mammals Monitoring Strategy (Draft), largely reflecting points raised during the FTRAG-MM meeting. SMRU welcomes the focus on bottlenose dolphins, highlighting the opportunity to address key knowledge gaps regarding the effects of pile driving, particularly given new evidence showing greater use of the Tay area by the population than previously estimated. They support the continued photo-ID monitoring in the Tay and Forth region, emphasizing its importance for providing context to PAM data and tracking broader population trends.</p> <p>While the PAM array locations are well considered, SMRU notes uncertainty due to limited baseline data and advises that additional photo-ID surveys be considered if piling occurs in winter. Finally, it is suggested that digital aerial surveys are unlikely to yield meaningful data on marine mammals, and recommend reallocating those resources to strengthen the photo-ID effort.</p>	<p>Noted. As discussed in Section 8.3.1, Inch Cape proposes to continue its contribution to the BND Photo-ID project for the next survey cycle.</p> <p>In relation to the DAS, these are primarily designed for ornithology monitoring, and will be undertaken in line with the ornithology monitoring approach. See section 8.2.1 for more details.</p>

## 8 Marine Mammals Proposed Monitoring

### 8.1 Approach to Monitoring

The marine mammal monitoring programme aims to enhance understanding of marine mammal responses to construction activities, and to validate the assumptions made in the application (i.e., EIAR 2018 (ICOL, 2018a) variation report (ICOL, 2022), and PS-GS).

During early discussions through the FTRAG-MM, it was agreed that monitoring should address key uncertainties identified in the various EIA Reports and HRAs undertaken during the licence applications. The aim is to validate the conclusions drawn in the Appropriate Assessments and other analysis that supported the ministerial recommendation, reduce the uncertainty and number of assumptions made in future ESs, and to confirm predicted impacts for the F&T Developments fall within the presented impact footprints of the respective EIA Reports.

It was also agreed during the early FTRAG-MM engagement that bottlenose dolphin, grey seals and harbour seals would be a candidate for construction and post construction monitoring due to uncertainties of species response to piling noise (as identified in the various ESs and HRA) and importance of the species at a Natura 2000 designation level. The route to impact was identified as displacement from / disruption within coastal waters and regions of the F&T.

In relation to bottlenose dolphins (BND), there is currently limited knowledge on the potential disturbance effect from pile driving activities, and no data available on the fine scale responses of dolphins to OWF pile driving activities. The only studies available to date are from Graham et al. (2017) which looked at dolphin response to pile driving during harbour construction (not on the scale of OWF piling) and Fernandez-Betelu et al. (2021) which only considered far field responses (>45 km) from pile driving at OWFs in the Moray Firth. As a result, EIA/HRA usually rely on harbour porpoise response data as a proxy for dolphins in current assessments. Given the proximity of the Development Area to areas used by the protected Coastal East Scotland bottlenose dolphin population, there is an opportunity to monitor bottlenose dolphin responses to pile driving to improve future assessment for dolphin species and validate the assessment undertaken in support of the permit application.

Potential monitoring for harbour seals was considered but given the very low number of harbour seals predicted to be disturbed by the Development, it was determined that there would never be a large enough sample size to establish any meaningful results from monitoring. Potential monitoring for grey seals was also considered, but given the wide-ranging nature of the species, targeted telemetry studies were not considered to be suitable, since there is a very low likelihood of tagged animals remaining in the area to be disturbed.

While it was acknowledged that harbour porpoise, minke whales, and white-beaked dolphins are likely to be displaced during piling operations within the Firth of Forth and Tay, it is unclear how changes to survivability and fecundity of such a wide-ranging species could be correlated back to displacement

from / disruption within regions of the Firths of Forth and Tay from piling noise. For minke whales and white-beaked dolphins, the lack of robust baseline would also hinder detection of change to population parameters. In addition, while harbour porpoise was the most common marine mammal species identified across the Firth of Forth and Tay projects, population numbers are not considered to be high within the Firth of Forth and Tay in a Scottish or UK context. For these reasons, these species were not prioritized for monitoring.

## **8.2 Site Specific Monitoring**

### **8.2.1 Digital Aerial Surveys**

#### **8.2.1.1 Pre-construction Digital Aerial Surveys**

A series of 12, monthly digital aerial surveys of Inch Cape were conducted between October 2016 to September 2017, covering the Inch Cape array area plus 4 km buffer (HiDef, 2020a) (Figure 8.1). The surveys detected the following marine mammal species: harbour porpoise (n=66), minke whale (n=1) and grey seal (n=13), as well as unidentified seal species (n=5) and unidentified seal/small cetacean species (n=4). The harbour porpoise absolute density estimate (corrected for availability bias) ranged between 0.00 – 1.23 porpoise/km<sup>2</sup> (average 0.43 porpoise/km<sup>2</sup> across all 12 surveys).

A second series of 12, monthly digital aerial surveys of Inch Cape were conducted between April 2019 to March 2020, covering the Inch Cape array area plus a slightly extended buffer (HiDef, 2020b) (Figure 8.2). The surveys detected the following marine mammal species: harbour porpoise (n=49), minke whale (n=2) and grey seal (n=7), as well as unidentified seal species (n=9) and unidentified seal/small cetacean species (n=2). The harbour porpoise absolute density estimate (corrected for availability bias) ranged between 0.00 – 1.5 porpoise/km<sup>2</sup> (average 0.29 porpoise/km<sup>2</sup> across all 12 surveys).

A third series of 12, monthly digital aerial surveys of Inch Cape were conducted between March 2024 and February 2025, covering the Inch Cape array area plus a 4 km buffer. In March, April and May 2024, the surveys detected the following marine mammal species: harbour porpoise and grey seal. The rest of the survey data has yet to be reported on, and no density estimates are available at this time.

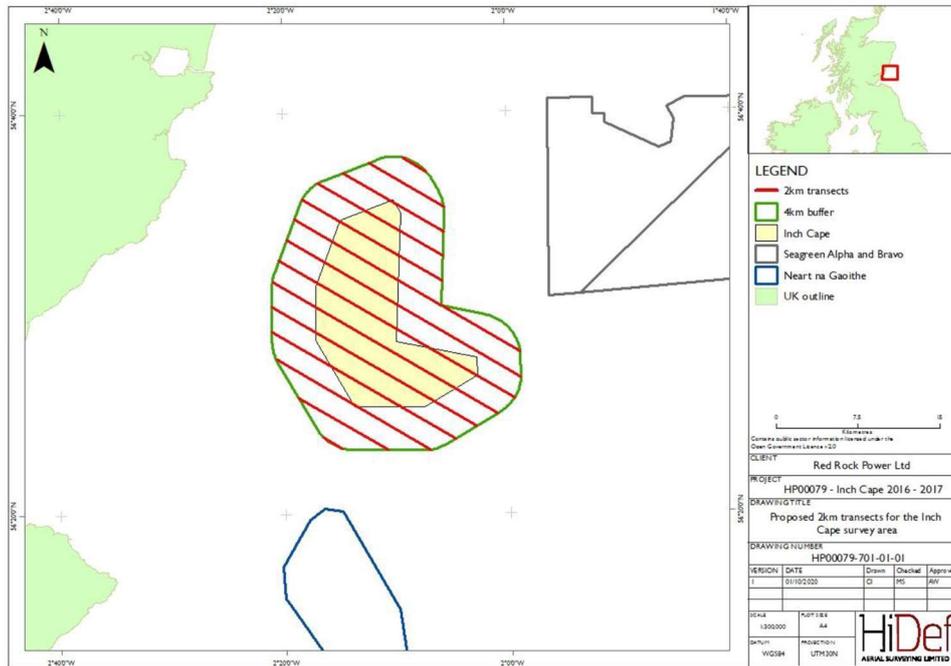


Figure 8.1: Survey design showing Inch Cape with 4 km buffer and 2 km spaced transects (October 2016 to September 2017)

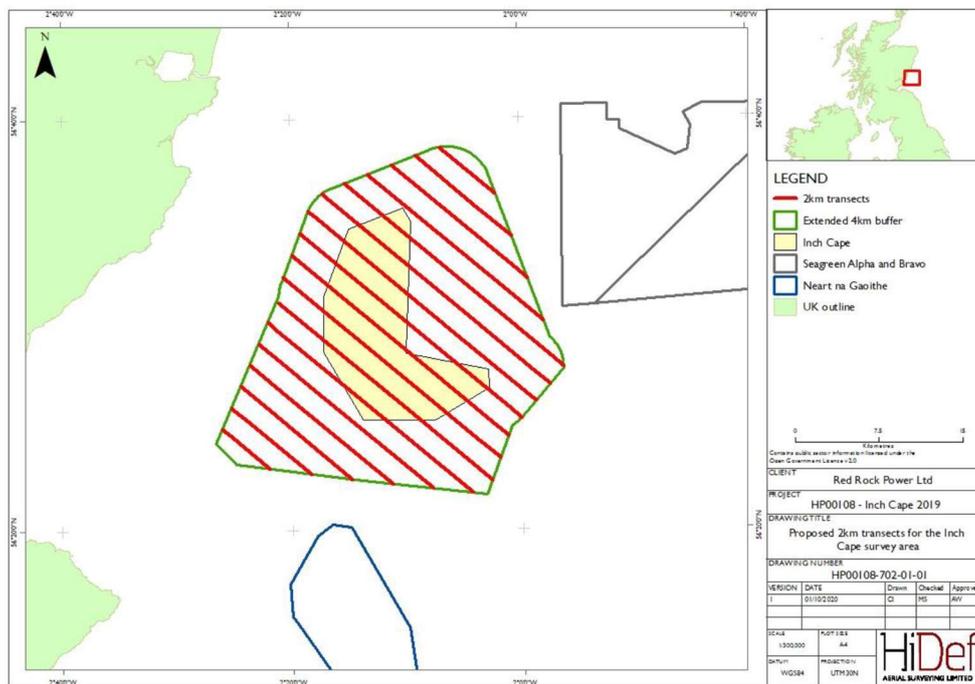


Figure 8.2: Survey design showing Inch Cape with extended buffer and 2 km spaced transects (April 2019 to March 2020)

### **8.2.1.2 Post-construction Digital Aerial Surveys**

ICOL intends to undertake post-construction DAS as part of 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<sup>1</sup>, 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.

## **8.2.2 Passive Acoustic Monitoring (piling)**

### **8.2.2.1 Scope of works**

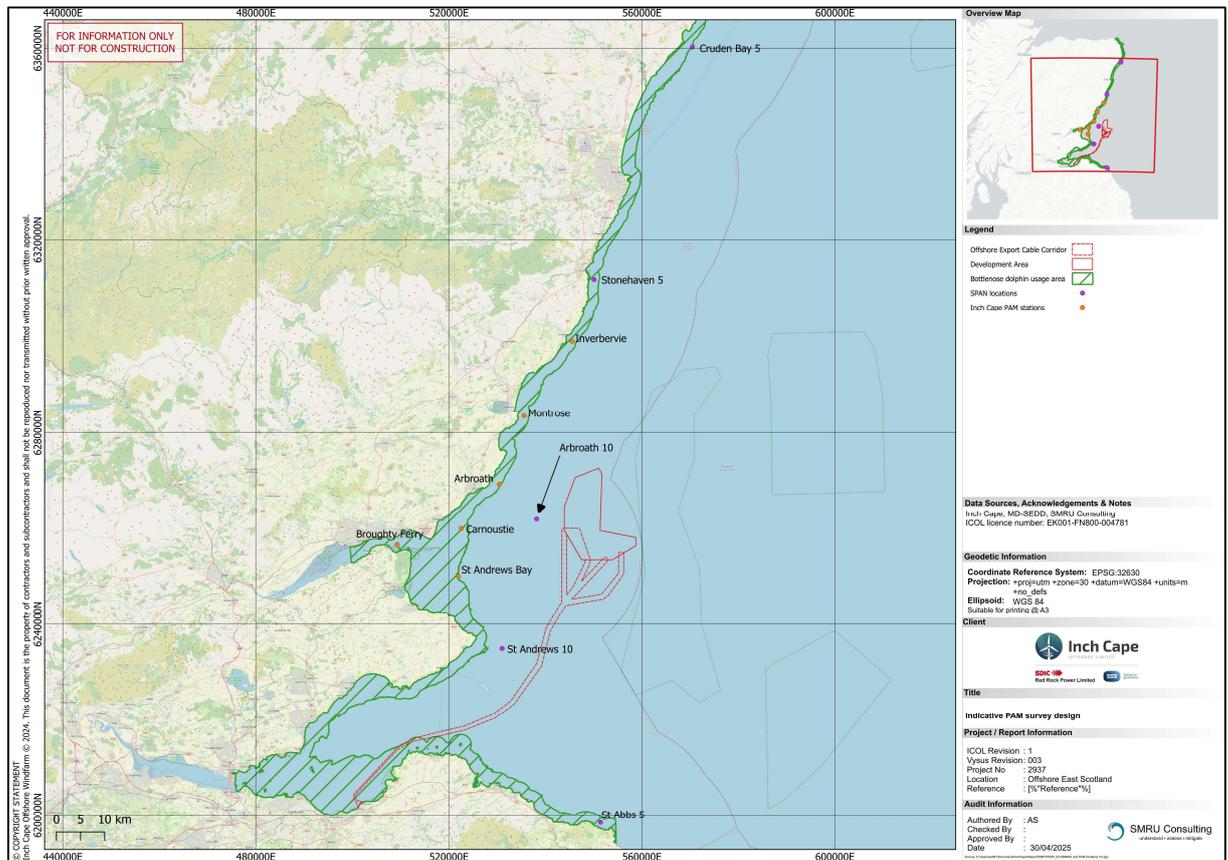
ICOL intends to deploy a Passive Acoustic Monitoring (PAM) array to monitor detections of dolphins prior, during and after the WTG piling works at Inch Cape. The array will comprise six stations, each equipped with a noise logger and a porpoise detector (F-PoD). These, in addition to the five east coast 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 PEMP, 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. Data collected in the Firth of Forth to date has shown that click detectors (C- or F-PoDs) indicated very little dolphin presence, which is why broadband recorders capable of detecting dolphin whistles (which propagate more widely than echolocation clicks) were added to supplement this dataset. Thus, to improve dolphin detections and inform understanding of dolphin responses, broadband recorders (noise loggers) should be used to detect dolphin whistles (in addition to the clicks that are recorded by C- and FPoDs).

Previous monitoring at the east coast ECOMMAS stations, Seagreen and NnG have shown that dolphin detections drop off significantly with distance from the coast. Therefore, given the primary aim of these surveys is to collect data on bottlenose dolphins, the locations of the PAM stations will be limited to <2 km from the coast and within the 20m depth contour to ensure the highest chance of maximising detections of the coastal bottlenose dolphins. Note: this spatially restricted distribution of dolphins means that it will not be possible to assess dolphin response to piling along a detailed gradient of distance to piling or received noise levels (i.e. deterrence or dose-response functions), as has been done for porpoise. The distribution of ICOL PAM stations has been designed to provide relatively even spacing of stations between the existing ECOMMAS stations of Stonehaven and St Andrews to maximise coverage along the Scottish east coast adjacent to ICOL. The PAM locations are shown in Figure 8.3.

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<sup>1</sup> Assumes WTG installation and commissioning to be completed in August 2027, per current programme.



**Figure 8.3: PAM survey design.**

The passive acoustic monitoring will:

- 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).

Analysis of PAM data for harbour porpoise has been removed from the scope of works, as the monitoring design is specifically tailored to detect bottlenose dolphins. Given the limited value of analysing data for harbour porpoise in this context, efforts will instead be focused exclusively on BND

detection and response.

#### **8.2.2.2 Schedule**

The following two-year monitoring schedule is expected<sup>2</sup>:

- Jul-25 to Dec-25: baseline monitoring before Inch Cape WTG piling commences
- Dec-25 up to Sep-26: construction monitoring during Inch Cape WTG piling activities
- End of piling to Jul 27: post piling monitoring.

The devices will be serviced approximately every three months.

#### **8.2.2.3 Analysis**

The data collected by the PAM sensors (noise loggers and F-PoDs) will be quality-checked and processed for marine mammal vocalisations via the bioacoustics software PAMGuard and FPOD.exe.

##### **1) Dolphin acoustic presence**

**The primary aim of the analysis will be to determine if there is any change in bottlenose dolphin detection rates before, during and after piling at Inch Cape.**

The acoustic data from the loggers will be processed to obtain bottlenose dolphin clicks and whistles. The F-POD data will be processed in the FPOD.exe application where click detections will be classified to identify delphinid echolocation click trains. The output of this data processing will be bottlenose dolphin detection rates at each PAM site over time (before, during and after piling at Inch Cape). The data can then be modelled (using various environmental and construction-related covariates) to understand if piling resulted in changes in detection rates of bottlenose dolphin whistles and clicks.

**Secondary aim:** It may be possible to attempt to investigate a re-distribution of bottlenose dolphins in response to pile driving at Inch Cape. This will not be possible using dolphin whistles as the frequency of whistle production varies significantly with social context and behavioural state. However, it may be possible to examine the rate of dolphin clicks to investigate re-distribution. For example, if detection rates decrease at sites closest to Inch Cape, and detection rates increase at sites further from Inch Cape following piling, this may be indicative of dolphins moving away from the vicinity of Inch Cape to other areas.

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<sup>2</sup> The schedule is indicative, and subject to changes due to vessel availability, weather conditions, and effective piling activities window.

## 2) Underwater noise levels and information on propagation of piling noise in very shallow waters

The aim of this analysis will be to collect data on underwater noise levels in very shallow coastal waters which can then be compared to the noise levels predicted by the underwater noise model to determine if there is any significant difference in measured vs modelled noise levels.

The acoustic data collected by the noise loggers will be processed to measure underwater noise levels before, during and after piling activities. Pile strikes will be identified in the acoustic datasets via the hammer information and using detection and annotation tools. The calibration details of the noise loggers will be used to produce calibrated noise levels which could be compared to the pile strike measured noise recorded closer to piling locations during the underwater noise monitoring.

### 8.2.3 Underwater Noise Monitoring during piling

ICOL intends to 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 the potential to improve cumulative PTS ( $SEL_{cum}$ ) predictions in future impact assessments. An underwater noise contractor will be employed to conduct underwater noise monitoring during pile driving activities. The design for the underwater noise monitoring has yet to be determined (e.g. equipment type, distance from piles, number of piling events monitored, etc.).

## 8.3 Regional Monitoring

### 8.3.1 Bottlenose Dolphin Photo-identification

The Scottish east coast bottlenose dolphin population has been studied since 1989 in a continuously running project led jointly by the University of Aberdeen and the University of St Andrews. The project initially focussed on the Moray Firth but subsequently extended to the Firth of Tay and adjacent waters following the range expansion of the population in the late 1990s (Wilson et al. 2004).

For the last 15 years, studies across this range have provided annual estimates of total population size and the number of animals using the Moray Firth and the Firth of Tay and adjacent waters in summer, estimates of survival and birth rates for the population, and demonstrated the movement of individuals along the east coast (Arso Civil et al. 2017, 2019a, 2019b, 2021; Cheney et al. 2024). Between 2020 and 2025, the project “*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 (Arso Civil et al. 2025). A summary of these is provided in Table 8.1 and the data from 2020-2022 were used in the Moray Firth SAC site condition report for 2017-2022 (Cheney et al. 2024).

**Table 8.1: Summary of the Forth and Tay bottlenose dolphin photo-ID surveys conducted between 2020 and 2024.**

Year	# Surveys (months)	# Encounters	Average Group Size	# Unique Individuals	Reference
2020	22 (Jun-Sep)	40	13 (2-50)	140	(Arso Civil et al. 2021) and (Cheney et al. 2024).
2021	27 (Jun-Sep)	42	15 (2-40)	145	(Arso Civil et al. 2022) and (Cheney et al. 2024).
2022	28 (May-Sep)	75	12 (1-50)	200	(Arso Civil et al. 2023) and (Cheney et al. 2024).
2023	22 (May-Sep)	55	12 (1-45)	204	(Arso Civil et al. 2023)
2024	25 (May-Sep)	42	12 (1-40)		(Arso Civil et al. 2025)

In recent years, the population has expanded its range further south, and dolphins are now consistently present along the northeast coast of England. Historical survey effort in the Moray Firth and the Firth of Tay and adjacent waters is thus no longer sufficient to monitor the whole population. A systematic survey programme was initiated in northeast England in summer 2024 as part of a University of St Andrews PhD project, the aims of which include investigating the movements of dolphins between Scotland and England. The Firth of Tay and adjacent waters remain a key area for the population, being regularly used by a large, and increasing, proportion of the total east coast population.

ICOL intends to contribute to the bottlenose dolphin Photo-ID project for the next survey cycle. The level of contribution is yet to be confirmed, subject to co-funding in line with the ICOL's approach to monitoring as discussed in Section 8.1.

## 9 Reporting

### 9.1 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 2030).

For bottlenose dolphin PAM 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 within three months of receipt of the reports from the contractor. Following review and comments from the FTRAG-MM, the document will be finalized and submitted to MD-LOT.

## **9.2 Regional and Strategic Monitoring**

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

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