Addendum to the Environmental Impact Assessment Report

NISA

North Irish Sea Array

Volume 8: Introductory Appendices

Appendix A6.3
Operational Monitoring Plan

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Appendix A6.3:

Operational Monitoring Plan

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Table of Contents

Acronyms

Term	Definition
ACP	An Coimisiún Pleanála
AIS	Automatic Identification System
CEMP	Construction Environmental Management Plan
ECMG	East Coast Monitoring Group
MSO	Marine Survey Office
MAMP	Marine Archaeology Management Plan
NISA	North Irish Sea Array
NRA	Navigational Risk Assessment
OMP	Operational Monitoring Plan
PAD	Protocol for Archaeological Discoveries
RFI	Request for Further Information
SECAD	South East Cork Area Development
SFC	Sustainable Fisheries Community
WTG	Wind Turbine Generator

1. Introduction

North Irish Sea Array Windfarm Ltd (NISA, hereafter referred to as 'the Developer') has been considering the Request for Further Information (RFI) issued by An Bord Pleanála (now An Coimisiún Pleanála) as well as the third-party submissions received following public consultation. At An Coimisiún Pleanála's behest, the Developer has also continued to consult with stakeholders in respect of the 2024 planning application throughout 2024-2026. The Developer has refined elements of the design to respond to the third-party submissions, the continued public and stakeholder consultation and the RFI. Full details of consultation undertaken can be found in Appendix A.1.2 Consultation Report.

Any cross reference to a chapter, section, table, image, figure or appendix within this document is to another location within the Addendum to the EIAR unless explicitly stated otherwise. Any cross reference to anything included in the 2024 EIAR will be clearly labelled as such.

The sections relevant to the Operational Monitoring Plan (OMP) in the RFI are included in Table 1.1 below.

1.1 The North Irish Sea Array Offshore Windfarm

The North Irish Sea Array (NISA) is an offshore windfarm, hereafter referred as the proposed development, located off the coast of counties Dublin, Meath and Louth. At its closest point the array area is located approximately 11.3 km from land, with the closest wind turbine generator (WTG) situated approximately 12.4 km from the coastline. The offshore export cable will make landfall in the townland of Bremore, north of Balbriggan, Dublin.

A full description of the proposed development, both offshore and onshore, is provided in Chapter 6 and Chapter 7, and the associated chapters respectively.

1.2 Further Information Request

In response to the Request for Further Information (RFI) regarding the offshore elements of the proposed development, design refinements are now proposed, informed by ongoing engagement and the design process. These refinements are summarised in Appendix A5.1: Design Refinements and further detail is provided in Chapter 6: Description of the Proposed Development, and Chapter 8: Construction Strategy. Additionally, a specific RFI was submitted by An Bord Pleanála (ABP) (now An Coimisiún Pleanála (ACP)). This is described in Table 1.1 below:

Table 1.1 The sections of the RFI relevant to the OMP

RFI Section	RFI	Relevance to OMP
1 (d)	The applicant is requested to provide details of an operational monitoring programme for the proposed development. In this regard, the applicant is advised that the proposed operational monitoring programme should fully inform the requirements of any future decommissioning plan(s) and justify any adaptive mitigation	This OMP has been developed to address this RFI. Where appropriate, the relevant technical topics have described the proposed approach to operational monitoring. It should be noted that the scope associated with any specific monitoring measures through all phases

RFI Section	RFI	Relevance to OMP
	measures required. The proposed operational monitoring should be provided at appropriate intervals, for appropriate periods, and provide for adequate reporting to the relevant compliance authorities.	of the proposed development will be discussed with ACP and the relevant regulatory authorities.
4	The documentation submitted does not provide specific detail, assessment, or review of the range of ecosystem functions and services which could be impacted by the proposed development. The National Marine Planning Framework (NMPF) states that proposals to protect, maintain, restore, and enhance coastal habitats for ecosystem functioning and provision of ecosystem services will be supported, subject to the outcome of statutory environmental assessment processes. Seafloor and Water Column Integrity Policy 3 of the NMPF also requires proposals to take account of the space required for coastal habitats, for ecosystem functioning and the provision of ecosystem services and to demonstrate that they will, in order of preference, avoid, minimise or mitigate for net loss of coastal habitats. The applicant is requested to update the EIAR to include an assessment of impacts (both positive and negative) on relevant ecosystem functions and services and include mitigation measures, as appropriate. The applicant is also requested to submit a synopsis report of the relevant impacts on ecosystem functions and services. In identifying the relevant ecosystem services for assessment, including those services classified as provisioning, regulation and maintenance, and cultural services, the applicant is advised to consider the full range of ecosystem services set out in the report 'Valuing Ireland's Blue Ecosystem Services' (SEMRU of NUI Galway, 2018), as referenced in the NMPF. The report should also consider the need for an adaptive management framework for ongoing assessment and should include provision for appropriate monitoring of any mitigation measures and operational management strategies, as well as provision for decommissioning.	A specific Ecosystems Functions and Services Assessment (see Appendix A3.3: Ecosystem Function and Services Assessment) has been submitted. The outcome of individual receptor assessments concluded no material impact on ecosystem services, and no impediment to the ability of normal ecosystem functions and services to function, resulting from the proposed development. As a result, no specific monitoring for Ecosystem Functions and Services has been provided.
9b	It is noted that the applicant concludes that the 'sensitivity' of the 'Burrowing megafauna	The Developer has considered benthic monitoring requirements and believes no

RFI Section	RFI	Relevance to OMP
	Maxmuelleria lankesteri in circalittoral mud' (SS.Smu.CfiMu.MegMax) biotope is 'high'. The Board agrees that this is appropriate for a biotope with this conservation importance. It would be expected, however, given the extent of the biotope across the array area, that 'magnitude' may be 'low' or 'medium' rather than 'negligible' noted in the EIAR. Given that a high sensitivity and a medium magnitude leads to a result of 'Significant' in EIA terms, the applicant is requested to review the justification provided for their magnitude of 'negligible', and either provide further evidence for this in the EIAR, or provide a reconsideration of magnitude for this receptor. If any magnitude values are changed, the applicant is requested to ensure that these feed through the impact assessment process. Following the provision of a revised assessment, the applicant should reconsider their pre-, during and post-construction benthic monitoring requirements and plans as necessary.	further monitoring is required for Benthic and Intertidal Ecology, as set out in Section 3.4.
15 (f)	The applicant is requested to examine the need for mitigation measures, in addition to monitoring during the operational phase, to reduce potential impacts on bats, and is requested to provide details in relation to potential mitigation measures, for example, including, inter alia, measures such as curtailment or feathering of blades under certain conditions.	Proposed monitoring for Offshore Bats is considered further in Section 3.11. The Developer believes there is greater value in focusing on strategic monitoring in collaboration with the ECMG.

This document therefore seeks to address the above and outline proposed monitoring during the operational phase of the offshore development. Monitoring related to the onshore development is dealt within Appendix A9.1: Onshore Construction Environmental Management Plan (CEMP).

1.3 Purpose of the OMP

This Operational Monitoring Plan (OMP) outlines the approach for delivering the anticipated monitoring measures for the offshore development required by conditions associated with any granted permission. The OMP provides a framework for a final OMP, which is anticipated to be required under conditions of the planning consent and will be developed post-consent. A final detailed OMP will be submitted to ACP for approval, prior to the start of construction, based on further discussions post consent with ACP and the relevant regulatory authorities to agree the exact detail (timings, methodologies etc.) of the monitoring that is required.

This OMP covers the following relevant topics and identifies whether operational monitoring is required. Where required, proposed approaches are outlined for each topic:

- Section 3.2 - Marine Geology, Oceanography and Physical Processes;
- Section 3.3 - Marine Water and Sediment Quality;
- Section 3.4 - Benthic Subtidal and Intertidal Ecology;
- Section 3.5 - Fish and Shellfish Ecology;
- Section 3.6 - Marine Mammal Ecology;
- Section 3.7 - Offshore Ornithology;
- Section 3.8 - Commercial Fisheries;
- Section 3.9 - Shipping and Navigation;
- Section 3.10 - Offshore Archaeology and Cultural Heritage; and
- Section 3.11 - Offshore Bats

This document specifically focusses on monitoring associated with the offshore environment during the post-construction phase, however where relevant, pre-construction/ operational surveys are referred to as they often inform the direction of any proposed monitoring. Currently, specific monitoring measures have not been identified at this stage, as the final measures will require detailed consultation with relevant prescribed bodies following consent, such as NPWS, to determine the scope of individual monitoring options.

A separate Construction Environmental Management Plan (CEMP) has been prepared and submitted in support of the consent application, to provide information on environmental mitigation and monitoring relating to the onshore components of the proposed development. Therefore, the onshore components of the proposed development are not referenced further within this document.

1.4 Phase 1 East Coast Monitoring Group

The East Coast Phase One offshore wind projects (NISA, Oriel Wind Farm, Dublin Array Offshore Wind Farm, Codling Wind Park, and Arklow Bank Wind Park 2) recognise the potential need for, and benefits of, strategic monitoring initiatives to support their consent applications. Given the complex ecology and mobility of certain marine receptors, a coordinated approach offers the greatest strategic value and reflects established good practice in other jurisdictions, including Scotland and England. To support this, the projects have established the East Coast Monitoring Group (ECMG).

The ECMG is committed to continued collaboration within the group and with relevant statutory and technical stakeholders to identify and implement appropriate strategic monitoring initiatives. Monitoring undertaken by the East Coast Phase One projects will be guided by the conclusions of the EIAR process, with a focus on validation and evidence gathering. It is anticipated that, following consent, the ECMG and relevant stakeholders will work together to agree monitoring objectives, methods, and expected outcomes.

Any need for project-specific monitoring, participation in strategic initiatives, and the level of contribution to joint proposals will remain proportionate to the outcomes of each project's EIAR.

1.5 Decommissioning

As noted above, the details of any monitoring will be discussed with ACP and the relevant regulatory authorities. The Developer proposes that discussions in relation to decommissioning will continue as appropriate, taking into account relevant environmental information available at the time to support the decommissioning plan

2. General Guiding Principles for the Proposed Monitoring

2.1 Principles

The guiding principles for monitoring which apply to the monitoring outlined in this document are as follows:

- All consent conditions, which would include those for monitoring, should be necessary, relevant to planning, relevant to the permitted development, enforceable, precise and reasonable in all other respects.
- In line with good practice, monitoring must have a clear purpose in order to provide answers to specific questions. As such, monitoring proposals should have an identified aim, end date and confirmed outputs, which provide, as far as possible, statistically robust data sets, as applicable to the hypothesis being tested.
- The design of the monitoring programme should demonstrate robust and practical indicators derived from the initial site surveys, and recognition of the practical challenges of monitoring inherent in any site, it is important that where monitoring protocols are in place they relate to identified thresholds (Guidance on Marine Baseline Ecological Assessments & Monitoring Activities for Offshore Renewable Energy Projects Part 1 & 2, DCCAE, 2018).
- Monitoring should be targeted towards the most sensitive receptors and impacts.
- The Developer is committed to sharing monitoring data and research findings openly with regulatory bodies, researchers, and other developers to facilitate regional cooperation, and promote best practices.

3. Proposed Monitoring

3.1 Engineering and Design Related Monitoring

In addition to the environmental survey and monitoring required as conditions of the development consent, survey activities may also be undertaken for the proposed development for engineering purposes. Some of these will overlap with the conditioned monitoring and wherever possible the Developer will look to combine surveys for monitoring purposes with those already being carried out for engineering purposes to optimise data collection and evidence.

Geophysical and geotechnical survey data will be collected prior to construction to support engineering and final design development. In particular, these surveys will also be used to determine whether additional monitoring, in line with the Marine Archaeology Management Plan (MAMP), will be required for marine archaeological receptors, see Sections 3.4.

Operational monitoring will assess the need for cable burial depth surveys and identifying any potential scour development around foundations and installed scour protection.

3.2 Marine Geology, Oceanography and Physical Processes Proposed Monitoring

The impact on marine geology, oceanography and physical processes during all phases of the development are not significant in EIA terms, therefore no additional monitoring or independent surveys are considered necessary and therefore proposed, specific to the potential impacts upon marine geology, oceanography and physical processes.

3.3 Marine Water and Sediment Quality Proposed Monitoring

The impact on marine water and sediment quality during all phases of the development are not significant in EIA terms, therefore no additional monitoring or independent surveys are considered necessary and therefore proposed, specific to the potential impacts upon marine water and sediment quality.

3.4 Benthic Subtidal and Intertidal Ecology Proposed Monitoring

RFI 9 (b) asks the Developer to reconsider the benthic monitoring requirements, however the impact on benthic subtidal and intertidal ecology during all phases of the development are not significant in EIA terms, therefore no additional monitoring or independent surveys are considered necessary.

3.5 Fish and Shellfish Ecology Proposed Monitoring

The impact on fish and shellfish ecology during all phases of the development are not significant in EIA terms, therefore no additional monitoring or independent surveys are considered necessary.

It should be noted however, that the Developer has established a €1 million Sustainable Fisheries Community (SFC) administered independently by South East Cork Area Development (SECAD) during the development stage of the proposed development. This will also provide insights and benefits from an ecology standpoint via projects such as the low impact fishery pilot and a mobile application for marine biodiversity mapping.

3.6 Marine Mammal Ecology Proposed Monitoring

Given that the project design reflects suction bucket foundation installation technology rather than drilled piles, it is considered that no project specific monitoring related to underwater noise for marine mammals is required. However, following any discussions with the Regulatory Authority and or statutory bodies, such as NPWS, consideration could be given to a wider strategic monitoring study with the ECMG focussing on the potential displacement effects of the wind farm presence and associated construction activities upon marine mammals. The Sustainable Fisheries Community (SFC) initiative established by the Developer (see Section 3.5) has already commenced a project which creates a mobile app for Marine biodiversity mapping. This app gives Fisheries the opportunity to collaborate with a respected scientific organisation (Whale and Dolphin Society) and to become a resource for science and data gathering, specifically for Whales, Dolphins, Porpoises, and Basking Sharks.

3.7 Offshore Ornithology Proposed Monitoring

The Developer believes there is greater value in focussing on strategic monitoring in collaboration with the ECMG. The Developer is committed to discussing and agreeing potential strategic monitoring initiatives in relation to offshore ornithology and believes that there is greater power in any results from a wider, more strategic study, which will be able to ascertain any potential changes on a much greater scale.

There are however potential project specific monitoring options which are outlined in Table 3.1 below, which at this stage have not been fully developed and require further consultation post consent with the relevant statutory body, such as NPWS. The focus of these studies would likely be the following key species: Guillemot, Razorbill, Kittiwake, Red Throated Diver and Terns.

Table 3.1 Potential monitoring for offshore ornithology

Phase	Reason for monitoring	Proposed Monitoring
Pre-construction, during construction and operational	Determining if there is a significant difference in densities of birds inside and outside the windfarm. This would focus on kittiwake and guillemot.	The specific methodology would be discussed with the regulatory authority but could include manual tracking methods.
Pre-construction, during construction and operational	Determining if there is a significant difference in foraging activity inside and outside the windfarm, and can this be associated with the presence of the windfarm.	The specific methodology would be discussed with the regulatory authority but could include manual tracking methods.
Pre-construction, during construction and operational	Do roseate, common and arctic terns forage within the windfarm and if so, what are their flight heights when doing so?	The specific methodology would be discussed with the regulatory authority but could include manual tracking methods to allow foraging locations to be established.

3.8 Commercial Fisheries Proposed Monitoring

As noted in Section 3.5, the Developer has established a €1 million SFC administered independently by SECAD during the development stage of the proposed development. This provides a conflict-free mechanism to support displacement initiatives, fisheries research, education programmes, reduced impact gear transition projects, and coastal engagement. The fund aligns with the proposed development's sustainability pillars (Climate Action, Just Transition, Biodiversity, Circular Economy) and UN Sustainable Development Goals, ensuring legacy value beyond mitigation compliance.

Unlike traditional models, the SFC has been established pre-consent and will be adapted to address the governance requirements of the Fisheries Management and Mitigation Strategy (FMMS) post consent, during construction and operation. This structure ensures fisheries voices are embedded within project decision-making, mitigation design, and monitoring commitments.

The SFC can provide a structure through which post-construction surveys, gear interaction reporting, ongoing coexistence reviews, and iterative adjustments can be governed. By embedding grassroots fisheries oversight within monitoring programmes, the SFC would ensure long-term coexistence commitments remain active throughout the wind farm life.

So far the SFC has commenced the following activities; these activities will have benefits beyond the development stage and will inform further activities in construction and monitoring:

1.Digital Effort Traceability Pilot (DETP): Provides smaller fishing operators with evidence of historic effort to back up claims of displacement should they occur. Gamechanger here is the fact that the user controls their own data. This will be of major benefit to both the Seafood and renewables sectors as the problem of how to inform primary compensation for displacement for surveys and construction has been an ongoing puzzle.

2. Coastal education Vehicle: Lack of awareness by the general public around the seafood industry, heritage, culture and the optimised use seafood as an everyday foodstuff in Ireland has long been a complaint of fishing spokespeople. This initiative will promote awareness of the industry with respect to sustainability and resource management to ensure uptake by the next generation.

3. Low Impact Fishery Pilot: This project aligns with the objectives of best practice guidelines for small scale fisheries. It will showcase how fisheries can be brought back into the centre to attract regenerative tourism and enhance the socioeconomic wellbeing of coastal communities. It will explore artisanal value adding, short supply chain and ties in with the DETP project by providing smart data to support full catch traceability.

In addition, the proposed monitoring within Section 3.9 for shipping and navigation will be of use and interest to fisheries stakeholders and will provide an insight into any potential changes to fishing vessel activity as a result of the development.

3.9 Shipping and Navigation Proposed Monitoring

Recent guidance published by the Department of Transport on Marine Navigational Safety & Emergency Response Risk of Offshore Renewable Energy Installations (OREI) requires OREI operators to monitor and review the impact their activities have on the safety of navigation during the construction and operation phases. The potential need for vessel traffic monitoring via Automatic Identification System (AIS) during and following the completion of construction will be discussed with the Marine Survey Office (MSO) prior to the start of construction. This would allow the effectiveness of the mitigation measures being deployed to be assessed based on the changes to vessel traffic movements compared to that estimated in the Navigational Risk Assessment (NRA).

Table 3.2 provides information on the proposed monitoring requirements for shipping and navigation.

Table 3.2 Proposed monitoring for shipping and navigation

Phase	Reason for monitoring	Proposed Monitoring
Construction	The main purpose of vessel traffic monitoring is to ensure the Navigational Risk Assessment (NRA) for the proposed development is accurate for the construction and operation phase; that the predictions made in the NRA with regards to the traffic patterns are accurate.	Construction monitoring shall include vessel traffic monitoring by Automatic Identification System (AIS), including the provision of reports on the results of that monitoring submitted to the MSO.
Operation		Post-construction monitoring shall also include vessel traffic monitoring via AIS, including the provision of a report on the results of that monitoring submitted to the MSO. As required, any potential change to traffic patterns will be highlighted.

3.10 Offshore Archaeology and Cultural Heritage Proposed Monitoring

A Marine Archaeology Management Plan (MAMP) has been developed for the proposed development which provides an overarching framework by which the Developer will manage potential risks to marine

archaeological cultural heritage from the proposed development throughout its lifetime Included in the Offshore Archaeology and Cultural Heritage Proposed Monitoring

A Marine Archaeology Management Plan (MAMP) has been developed for the proposed development which provides an overarching framework by which the Developer will manage potential risks to marine archaeological cultural heritage from the proposed development throughout its lifetime Included in the MAMP is a Protocol for Archaeological Discoveries (PAD) which will be implemented. A PAD is a system for reporting and investigating unexpected archaeological discoveries encountered during the different phases of the proposed development, with a Retained Archaeologist providing guidance and advising industry staff on the implementation of the PAD. As a result, via the PAD system, further surveys may be required.

Table 3.3 provides information on the proposed monitoring requirements for 3.10 Offshore Archaeology and Cultural Heritage Proposed Monitoring.

Table 3.3 Proposed monitoring for offshore archaeology

Phase	Reason for monitoring	Proposed Monitoring
Pre-construction	Identifying known and potential/ currently unknown archaeological receptors, further helping to determine the archaeological potential of the area.	When geophysical and/or geotechnical monitoring is undertaken, data will be assessed by a suitably qualified archaeological contractor.
During construction and operation	Reporting and investigating archaeological discoveries encountered during this phase of the development as per PAD requirements	

3.11 Offshore Bats Proposed Monitoring

RFI 15 (f) request the Developer consider the need for monitoring during the operation phase. The Developer believes there is greater value in focussing on strategic monitoring in collaboration with the ECMG. The Developer is committed to discussing and agreeing potential strategic monitoring initiatives in relation to offshore bats and believes that there is greater power in any results from a wider, more strategic study, which will be able to ascertain any potential changes on a much greater scale.

There are however potential project specific operational monitoring options which are outlined in Table 3.4, which at this stage are not developed and require further consultation post consent with the relevant statutory bodies, such as NPWS.

Table 3.4 Potential monitoring for offshore bats

Phase	Reason for monitoring	Proposed Monitoring
Operation	Determine if the operational windfarm effects the presence and activity of offshore bats within and outside the array area.	Any final methodology would be discussed with the ECMG and Regulatory Authority but could include the use of static bat detectors in strategic locations.
Operation	Determine the presence of established offshore bat migratory routes and do they pass through the operational windfarm.	Any final methodology would be discussed with the ECMG and Regulatory Authority but could include the use of static bat detectors in offshore and onshore locations.

4. References

Department of Transport (2024). Draft Marine Navigational Safety & Emergency Response Risk of Offshore Renewable Energy Installations (OREI).