



Sporad na Mara Offshore Wind Farm
Offshore Project
Environmental Impact Assessment Report
Title: Offshore Invasive Non-Native Species
Management Plan, Volume 3

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1 INTRODUCTION

1.1 OVERVIEW

1.1.1.1 This Offshore Invasive Non-Native Species Management Plan (INNSMP) has been produced alongside the Environmental Impact Assessment Report (EIAR) for the proposed Spiorad na Mara Offshore Wind Farm Project (hereafter referred to as 'the Offshore Project') and aims to address the specific requirements of the Section 36 Consents granted by the Scottish Ministers to Spiorad na Mara Limited (referred to as "the Applicant") under section 36 (s.36) of the Electricity Act 1989.

1.1.1.2 The Offshore Invasive Non-Native Species Management Plan presents the approach to managing the risk of introducing and spreading invasive non-native species associated with the construction, operation and maintenance, and decommissioning of the offshore components of the Project.

1.1.2 PROJECT BACKGROUND

1.1.2.1 The Applicant is proposing to develop the Project. The Project is an offshore wind farm (OWF) that will consist of up to 60 fixed-bottom wind turbine generators (WTGs).

1.1.2.2 The Project will include both offshore and onshore infrastructure. This Management Plan supports the application for the offshore components of the Project as outlined in **Chapter 1: Introduction, Volume 1a** of the EIAR. The offshore components of the Project (the 'Offshore Project') includes all infrastructure and activities located seaward of Mean High Water Springs (MHWS) within the Array Area and Offshore Cable Area of Search (OCAS) (**Figure 1.2: Offshore Project Location, Volume 1b** of the EIAR). Further detailed information is provided in **Chapter 3: Offshore Project Description, Volume 1a** of the EIAR.

1.1.2.3 The Offshore Project is situated off the northwest coast of Isle of Lewis/*Eilean Leòdhais* and the Array Area is located approximately 5 km-13 km offshore and is approximately 161 km² in size. It will comprise WTGs, foundations, Offshore Cables, Offshore Substation Platform (OSP) (if required), and Landfall. The Array Area combined with the OCAS is defined as the Offshore Project Boundary. The water depths across the Array Area range from 37 m-67 m with the southwest corner of the Array Area reaching 72 m. The proposed WTGs and fixed foundations will be located within a Turbine Area of approximately 140 km², within the Array Area.

1.1.2.4 The EIAR accompanies applications for offshore consents, licences and permissions for the Offshore Project to Marine Directorate - Licensing Operations Team (MD-LOT) under Section 36 (s.36) of the Electricity Act 1989, the Marine (Scotland) Act 2010.

1.1.2.5 There are 2 sets of EIA regulations applicable to the Offshore Project: the Electricity Works (EIA) (Scotland) Regulations 2017 for offshore generating stations requiring s.36 consent; the Marine Works (EIA) (Scotland) Regulations 2017 for marine licence applications within Scottish territorial waters (0-12 nautical miles) respectively.

1.2 PURPOSE OF THE INVASIVE NON-NATIVE SPECIES MANAGEMENT PLAN

1.2.1.1 Invasive Non-Native Species (INNS) are organisms introduced by human activity into environments where they do not naturally occur. While many non-native species are benign, those that spread and disrupt native ecosystems can cause significant environmental, economic, and human health impacts. INNS can be introduced via marine vessels, equipment, and materials transferred between locations. It is therefore essential that the Offshore Project manages its risk of contributing to the introduction and/or spread of INNS.

1.2.1.2 This Offshore INNSMP has been prepared alongside the EIAR for the Offshore Project and is intended to be a live document, subject to further development and refinement in response to the requirements of relevant consent conditions and in consultation with statutory authorities and stakeholders. It provides a framework for managing the offshore INNS risks and will be refined post-consent to reflect final design and construction methods. The Offshore INNSMP has been submitted to Scottish Ministers as part of the discharge conditions under Section 36 of the Electricity Act 1989 and associated Marine Licences.

1.2.1.3 This Offshore INNSMP is submitted in line with standard practice for offshore renewable energy applications in Scotland. The INNSMP provides a comprehensive framework for managing the risk of introduction and spread of invasive non-native species associated with the Offshore Project, while recognising that detailed, contractor-specific biosecurity procedures and operational protocols will be finalised once the Principal Contractor(s) and O&M contractor(s) are appointed.

1.2.1.4 Across recent ScotWind and Section 36 applications, invasive non-native species management plans, alongside marine pollution contingency, emergency response, navigational safety and fisheries management plans, have been submitted in outline form at application stage, with detailed and contractor-specific measures developed post-consent. This staged approach reflects the level of design development and procurement certainty available at the time of application and is consistent with accepted practice by MD-LOT.

1.2.1.5 The Offshore INNSMP sets out the management approach and controls to be adopted by the Applicant and its contractors. These measures aim to reduce the risk of INNS introduction and mitigate potential impacts during all phases of the Offshore Project, construction, operation & maintenance (O&M), and decommissioning, as well as during vessel operations.

1.2.1.6 The broad objectives of the Offshore INNSMP are as follows:

- To provide a framework for implementing measures that reduce the introduction and spread of INNS and mitigate associated environmental impacts;
- To ensure marine works and vessel operations follow best practice guidance to prevent INNS introduction into Scottish waters;
- To establish clear monitoring and reporting systems, including communication pathways for responding to potential INNS sightings;
- To support compliance auditing and inspection to ensure environmental performance standards are met.

1.2.1.7 The Offshore INNSMP will be updated and submitted to Scottish Ministers prior to each project phase (construction, O&M, and decommissioning), in consultation with relevant regulatory bodies including MD-LOT, NatureScot, and SEPA.

1.2.1.8 This Offshore INNSMP should also be read in conjunction with the project description provided in **Chapter 3, Volume 1a** and the relevant parts of the following chapters:

- **Chapter 9: Physical and Coastal Processes, Volume 2a;**
- **Chapter 10: Marine Sediment and Water Quality, Volume 2a,**
- **Chapter 11: Benthic and Intertidal Ecology, Volume 2a;**
- **Chapter 12: Fish Ecology, Volume 2a.**

1.2.1.9 This Offshore INNSMP has been prepared with consideration of feedback received from stakeholders via the Scoping Opinion, statutory consultation and wider engagement, through which it was emphasised that management plans should be sufficiently robust to serve as effective embedded environmental measures where they are integral to impact reduction. **Table 1.1** presents a summary of stakeholder concerns related to INNS.

Table 1.1 Comments raised by Consultees in relation to INNS

Comment	Stakeholder	Response
In terms of mitigation and monitoring, the Scottish Ministers support the commitment to a Construction Environmental Management Plan (“CEMP”) and INNS Management Plan as embedded mitigation measures.	MD-LOT	Noted. This document provides the Offshore INNSMP.

1.3 LEGISLATION AND GUIDANCE

- 1.3.1.1 In Scotland/*Alba*, INNS are covered by section 14 of the Wildlife and Countryside Act 1981. This section was amended in 2012 when the INNS section of the Wildlife and Natural Environment (Scotland) Act 2011 came into force.
- 1.3.1.2 In 2012, the Scottish Government published the Code of Practice on Non-Native Species (Scottish Government, 2012), which sets out a framework of responsibilities for bodies with powers relating to INNS. The Code provides practical guidance on how developers should act responsibly and within the law to ensure that INNS do not cause harm to the marine environment. This Code focuses on a 3-tiered approach, including prevention, rapid response and control and containment.
- 1.3.1.3 Furthermore, Scottish Government (2020), which aims to protect and restore biodiversity, supporting healthier ecosystems, recognises INNS as a *"significant threat to our marine biodiversity and industries such as aquaculture"*. It also highlights the need to *"implement a rapid-response framework to prevent colonisation of new invasive species in Scotland's seas and islands"*, as they represent a significant threat to marine biodiversity. To protect and restore biodiversity, which includes the control of INNS, the methodology described in Payne *et al.* (2014) has been followed.
- 1.3.1.4 Specifically, this methodology is a 6-step process designed to prevent the introduction and spread of INNS in marine environments and comprises the following:
- Developing an understanding of the site;
 - Understanding the potential pathways of INNS introduction;
 - Identifying activities that pose risk;
 - Identifying relevant biosecurity measures;
 - Surveillance, monitoring, and reporting;
 - Contingency planning.
- 1.3.1.5 The Great Britain Invasive Non-Native Species Strategy (HM Government, 2015) describes the following tiered approach to managing INNS:
- Prevention;
 - Early detection, surveillance, monitoring and rapid response;
 - Long-term management and control.
- 1.3.1.6 HM Government (2015) places a strong emphasis on prevention; thus the Offshore INNSMP focuses on providing tools to aid prevention of introducing and/or spreading INNS.
- 1.3.1.7 Further legislation and guidance relevant to INNS is listed below:
- EU Regulation 11/43/2014 on the prevention and management of the introduction and spread of invasive alien species;
 - International Maritime Organisation (IMO), International Convention for the Control and Management of Ships' Ballast Water and Sediments (adopted in 2004) (IMO 2021);

- IMO Guidelines for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species (IMO, 2021);
- Resolution MEPC.207(62) 2011 Guidelines for the Control and Management of Ships Biofouling to Minimise the Transfer of Invasive Aquatic Species;
- The Invasive Non-Native Species (Amendment etc.) (EU Exit) Regulations 2019;
- The Merchant Shipping (Anti-Fouling Systems) Regulations 2024;
- The Animal Welfare and Invasive Non-Native Species (Amendment etc.) (EU Exit) Regulations 2020;
- Marine Biosecurity Planning - Guidance for producing site and operation-based plans for preventing the introduction of non-native species (Payne et al., 2014);
- Marine Biosecurity Planning – Identification of best practice: A review. Scottish Natural Heritage Commissioned Report No. 748 (Cook et al., 2015);
- MD-LOT guidance: Marine licensing and consenting: offshore renewable energy projects – mitigation and monitoring plans (Invasive Non-Native Species Mitigation Plan) (Scottish Government, 2020).

1.3.1.8 The Marine Directorate guidance (2025) notes that mitigation and monitoring plans should contain sufficient information at application stage; however, it does not create a statutory requirement for fully finalised and contractor-ready plans at this point in the consenting process. This Offshore INNSMP provides a comprehensive framework of measures based on the information available at the time of the Section 36 application.

1.3.1.9 The structure and content of this INNSMP align with the 2025 guidance and reflect the accepted approach taken on other offshore wind projects, including recent ScotWind and Section 36 applications, where invasive non-native species management plans have been submitted in outline form. Following contractor appointment and finalisation of construction and vessel methodologies, detailed procedures and site-specific biosecurity measures will be incorporated into the INNSMP prior to construction.

1.4 SCOPE OF INVASIVE NON-NATIVE SPECIES MANAGEMENT PLAN

1.4.1.1 This Offshore INNSMP sets out the framework for managing the risk of introducing and spreading invasive non-native species associated with the Offshore Project. It covers:

- Relevant legislation, guidance, and references that inform the Offshore INNSMP;
- The assessment methodology used to evaluate INNS risks, including site classification, vessel and equipment risk, activity-based pathways, and biosecurity measures;
- The site-specific INNSMP for the Offshore Project, including environmental conditions, survey findings, infrastructure risks, and control measures across construction, operation and maintenance, and decommissioning phases;
- Monitoring, surveillance, reporting procedures, and contingency planning;

- Roles and responsibilities for implementation and compliance;
- Linkages to other relevant management plans such as the Offshore Environmental Management Plan, Marine Mammal Mitigation Plan, and Fisheries Mitigation Plan.

1.5 IMPLEMENTATION OF THE INVASIVE NON-NATIVE SPECIES MANAGEMENT PLAN

- 1.5.1.1 During each Offshore Project phase (construction, operation and maintenance and decommissioning), the plan will be monitored by the Applicant's Construction Manager (or equivalent), Environmental Manager (or equivalent), and MD-LOT. Additional oversight may be provided by NatureScot, SEPA, and other statutory consultees as appropriate.
- 1.5.1.2 Monitoring will include:
- Routine inspections and reporting of INNS risks and sightings;
 - Verification of biosecurity control measures as outlined in Section 3.4;
 - Compliance checks against vessel and equipment risk assessments (Section 3.2);
 - Coordination with the In Principle Monitoring Plan for data collection and review.
- 1.5.1.3 Roles and responsibilities for biosecurity and monitoring are detailed in **Table 3.4**. A clear recording system and review cycle will be established to ensure the INNSMP remains current and effective throughout the lifecycle of the Offshore Project. This will include periodic reviews aligned with project milestones, updates triggered by new INNS sightings or changes in vessel/equipment origin, and coordination with contingency planning measures outlined in Section 2.2.6. All relevant personnel will be briefed on INNS risks and reporting protocols to ensure effective implementation.
- 1.5.1.4 The Offshore Invasive Non-Native Species Management Plan (INNSMP) will be updated post-consent and submitted to Scottish Ministers for approval prior to the commencement of offshore construction activities. The updated INNSMP will incorporate contractor-specific arrangements, confirmed roles and responsibilities, vessel and equipment biosecurity controls, and detailed monitoring and reporting procedures informed by the final construction methodologies and appointed contractors.
- 1.5.1.5 This staged approach ensures that the INNSMP fully integrates with the appointed contractor's environmental management systems and biosecurity procedures, while remaining consistent with the framework, commitments and mitigation measures established in this INNSMP and assessed within the EIAR.
- 1.5.1.6 The following elements will be developed post-consent and provided within the INNSMP once construction contractors are appointed and detailed methodologies are confirmed:
- Contractor-specific vessel and equipment biosecurity procedures, including antifouling, cleaning and inspection regimes;

- Confirmed biosecurity roles and responsibilities across the Applicant, Principal Contractor(s), and vessel operators;
- Detailed monitoring, surveillance and reporting protocols for potential INNS introduction or spread;
- Procedures for managing biofouling removal, handling and disposal in accordance with port waste management arrangements;
- Contractor-specific induction, training and awareness measures relating to INNS risks and reporting; and
- Updated contingency procedures aligned with contractor equipment capability, vessel types and operational practices.

1.6 OTHER RELATED MANAGEMENT PLANS

1.6.1.1 The Offshore INNSMP will be developed in coordination with other relevant management plans to ensure a consistent and integrated approach to environmental protection and operational control. **Table 1.2** outlines the key related plans, their anticipated linkages to INNS risk management, and placeholders for licence/consent conditions to be confirmed post-consent. Where applicable, these plans will be cross-referenced in the Offshore INNSMP to ensure alignment with mitigation measures, monitoring protocols, and stakeholder expectations.

Table 1.2: Other related Management Plans to the Invasive Non-Native Species Management Plan

Management Plan	Licence/consent conditions	Linkage with INNSMP
Offshore Environmental Management Plan	'[To be added post-consent]'	The plan provides the overarching framework for environmental management during the construction and O&M phases of the Offshore Project. The INNSMP will apply to activities during the construction and O&M phases of the Offshore Project.
Offshore Operation and Maintenance Plan	'[To be added post-consent]'	This plan provides reasonably foreseeable offshore maintenance activities and the broad approach to be taken for each activity associated with Offshore Project. The INNSMP will apply to activities during the O&M phases of the Offshore Project.
Fisheries Mitigation, Monitoring and Communication Plan (FMMCP)	'[To be added post-consent]'	The FMMCP provides the strategy for engaging, consulting, liaising, communicating, and undertaking mitigation actions with respect to the fishing industry during the full lifecycle of the Offshore Project.

Note: Licence/consent conditions will be populated post-consent once formal conditions are issued by Scottish Ministers. Linkages will be reviewed and updated to reflect any changes in project design, regulatory requirements, or stakeholder feedback.

2 INVASIVE NON-NATIVE SPECIES MANAGEMENT METHODOLOGY

2.1.1.1 The following sections describe the process of creating the Offshore INNSMP following best practice guidance (Payne *et al.*, 2014) and information provided in the Code of Practice on Non-Native Species (Scottish Government, 2020). A stepwise approach has been taken as detailed below, to accurately assess the risk of INNS in relation to the Offshore Project.

2.2 STEP 1 – UNDERSTANDING YOUR SITE

2.2.1.1 Local environmental conditions are an important factor in the spread of marine INNS. They are the key to whether introduced species can survive and establish themselves. Ideal conditions vary by species and as such, understanding the local environmental conditions relevant to the Offshore Project and available habitats will provide a better indication of which species are likely to establish if introduced.

2.2.1.2 The following parameters of the Offshore Project Boundary will be considered when understanding Offshore INNSMP development:

- Habitat and sediment type;
- Presence of any man-made structures;
- Whether INNS are present within/on site.

2.2.1.3 The presence/absence of INNS is directly linked to the salinity of the site, as the majority of marine flora and fauna are unable to survive in freshwater due to osmoregulatory effects (Evans, 1980). The more freshwater enters the site, the lower the risk of INNS due to inhospitable conditions; conversely a greater risk is present for a full marine site.

2.2.1.4 The risk of INNS establishment is also increased by the presence of man-made structures. Information regarding any periods of slow or stationary works or climatic conditions that may increase biosecurity risk will be included.

2.2.1.5 If INNS have been recorded onsite, the focus of the Offshore INNSMP will be reducing the risk of introducing new INNS and the prevention of spreading existing INNS to other sites. In this case, a precautionary approach will be followed, even if no INNS are present at the site.

2.2.1.6 Based on this, a site can be categorised as either a low risk or significant risk site, depending on the risk of INNS introduction and spreading.

2.2.2 Step 2 – Understand how INNS can be introduced or spread to your site

- 2.2.2.1 The introduction of artificial structures and the use of vessels during the different phases of the Offshore Scheme pose the risk of marine INNS introduction through the colonisation of hard substrate by locally present marine INNS, and through the spread in extent of INNS which may be present on vessel hulls or in ballast water. These can contribute to an increased rate of spread of these species, acting as ‘stepping stones’ for introduced species to further establish or expand their range to additional sites (Mineur, *et al.*, 2012).
- 2.2.2.2 As such, vessels and equipment associated with each phase of the Offshore Project may be associated with the introduction of marine INNS. To determine the risk of marine INNS introduction, each component has been reviewed for its potential to introduce or spread INNS to the site. The risk of each component has been rated as high, medium, low, or negligible risk, and has been adapted from guidance provided by Natural England and Natural Resources Wales (NRW) (Cook *et al.*, 2015).
- 2.2.2.3 This step will be iterative and revisited when the Offshore INNSMP is due for review (see paragraphs 3.7.2.1 and 3.7.2.2).
- 2.2.2.4 **Table 2.1** provides an example of the type of questions to consider when creating the Offshore INNSMP.

Table 2.1: Example of questions and risk to consider whilst creating an INNSMP (Payne *et al.*, 2014)

Question	Category		
	High	Medium	Low
<i>Has the vessel/equipment just arrived from the local area?</i>			
<i>Has the vessel/equipment had an anti-fouling coating applied to submerged structures within the last 12 months (or time recommended by manufacturer)</i>			
<i>Are all the visible submerged surfaces free of biofouling (a green ‘slime’ is OK)?</i>			
<i>Do the visible submerged surfaces have more than a green ‘slime’ coating?</i>			
<i>Does the vessel/equipment have noticeable clumps of algae and/or animals clinging to the visible parts of the hull/rudder/propeller?</i>			
<i>Has the vessel/equipment just arrived from another country, region or water body with similar environmental conditions (e.g. seawater temperature)?</i>			
<i>Has the vessel/equipment just arrived from a water body known to have INNS present?</i>			
<i>Does the vessel/equipment spend long periods of time stationary at sites in between anti-fouling treatments?</i>			
<i>Is the vessel ‘slow moving’, such as a construction barge or drilling rig?</i>			

- 2.2.2.5 The greatest risk of introducing INNS to the site is when a vessel (particularly slow moving vessels), equipment or stock arrives at the site from another country, region or water body, with similar environmental conditions (e.g. seawater temperature and salinity) while it is covered in biofouling

(i.e. anything more than a thin, green 'slime' coating for vessel hulls) or contains additional algae or animals.

2.2.2.6 Another risk is introducing INNS from the arrival of a vessel with biofouling on the hull, for example, which comes from a site known for the presence of INNS.

2.2.3 Step 3 – Identifying activities which risk introduction of INNS

2.2.3.1 Often this step involves a simple approach of listing all activities, using information obtained through the first 2 steps, which may carry a significant risk of introducing or spreading INNS. Once this list has been created, the next step is to develop relevant and proportionate control measures.

2.2.4 Step 4 – Biosecurity control measures

2.2.4.1 As part of this step, biosecurity control measures are identified. It is important that these measures are effective, simple, realistic and can be easily translated into instructions to others.

2.2.4.2 These measures must also consider how much control the Applicant has over the site and its activities. Control measures help the Applicant to meet their legal requirement described in Section 1.3 to take 'reasonable steps' to prevent the introduction of INNS.

2.2.4.3 To make the control measures effective, it is worth thinking about:

- Who will carry out the action;
- What they will be doing to reduce the risk of introducing INNS;
- Where will the control measure be applied;
- When will the control measure be applied (i.e. at what stage in a process).

2.2.4.4 A list of example control measures can be found within Cook *et al.* (2015) and Payne *et al.* (2014), many of which are, or will be, included in the Offshore INNSMP (see Section 3.4). Where possible, biosecurity measures will be included in the design stage of a new development and aim to 'design out' any possible significant risk of introducing or spreading INNS.

2.2.5 Step 5 – Biosecurity surveillance, monitoring and reporting procedures

2.2.5.1 Early detection of INNS on the site is important as this increases the likelihood of successful containment and potential for full eradication. For this reason, all staff and other site users will be encouraged to report any unusual sightings to the biosecurity officer.

2.2.5.2 This step outlines those procedures to be followed in the event of discovering and positively identifying an INNS on site. As part of this process the following will be considered:

- Setting out who is responsible for surveillance and monitoring of the site;
- Adding actions to encourage vessel owners who use the site to be vigilant and report any sightings of concern.

2.2.6 Contingency Plan

- 2.2.6.1 A contingency plan will be in place to deal with potential failure of the 'prevention' and 'rapid response' method. This document will be short and be accessible to all staff, ensuring it provides a step-by-step action list.
- 2.2.6.2 The contingency plan will review the activities identified in the Offshore INNSMP with potential to introduce and/or spread INNS and derive actions to deal with a potential failure of the proposed control measures.
- 2.2.6.3 For example, if a vessel had been wrongly assessed as low risk and introduced an INNS to the site, the introduced species would be sampled and identified, with the relevant authorities notified, followed by further containment and management measures being sought.

2.2.7 Monitoring and review

- 2.2.7.1 Following completion of the Offshore INNSMP, a clear recording system and review cycle date will be put in place to refine and update the Offshore INNSMP as required, in line with relevant regulations and legislation.

3 OFFSHORE PROJECT INVASIVE NON-NATIVE SPECIES MANAGEMENT MEASURES

3.1 STEP 1 – UNDERSTANDING YOUR SITE

3.1.1 Existing conditions

- 3.1.1.1 The Offshore Project Boundary is located within the vicinity of, but does not overlap, any sites of conservation interest or designation.
- 3.1.1.2 Water depths across the Turbine Area range from 37 m – 67 m with the southwest corner of the Array Area reaching 72m.
- 3.1.1.3 Within the Turbine Area, modelled peak flood tide current speeds during spring tides range from 0.40 m/s to 0.55 m/s while peak spring tide ebb current speeds range from 0.35 m/s to 0.50 m/s. In the OCAS, modelled peak flood current speeds during spring tides range from 0.20 m/s to 0.52 m/s and peak spring ebb tide current speeds range from 0.10 m/s to 0.45 m/s (see **Chapter 9, Volume 2a**)
- 3.1.1.4 The majority of the Array Area is comprised of A5.14 'Circalittoral coarse sediments' with A4.1 'Atlantic and Mediterranean high energy circalittoral rock' located along the eastern and southeastern boundaries. Additionally, small areas of A5.25 or A5.26 'Circalittoral fine sand' or 'Circalittoral muddy sand' and A5.15 'Deep circalittoral coarse sediment' are present in the southwestern part of the Array Area. The majority of the OCAS is comprised of the EUNIS BSH A4.1 'Atlantic and Mediterranean high energy circalittoral rock', with small areas of A5.14 'Circalittoral Coarse Sediment' (see **Chapter 11, Volume 2a**). In addition to this, there are no man-made structures within the Offshore Project Boundary.

3.1.2 INNS within the Offshore Project Boundary

- 3.1.2.1 Based on literature, in the West Highlands and Outer Hebrides/*Na h-Eileanan Sià*, INNS recorded include common cordgrass *Spartina anglica*, Pacific oyster *Magallana gigas*, Japanese skeleton shrimp *Caprella mutica*, and Japanese wireweed *Sargassum muticum* with further context provided in **Chapter 11, Volume 2a**. Across the area within the Offshore Project Boundary, 2 INNS were identified from e-DNA site-specific surveys: the polychaete (*Goniadella gracilis*), observed once at stations STAD002 and STAD007, and the red algae (*Bonnemaisonia hamifera*), recorded at Station ST023 (see **Chapter 11, Volume 2a**). Further introduction of and/or colonisation opportunities provided to these INNS could lead to biodiversity loss and costly biosecurity management challenges as potentially native species could be outcompeted, habitats and community structures could be altered, diseases could be spread within the Offshore Project Boundary (JNCC, 2025). Consideration of potential for INNS colonisation and spreading in relation to the Offshore Project is

discussed in Section 11.8.6 for the Construction Phase and in Section 11.9.6 for the O&M Phase of **Chapter 11, Volume 2a**.

3.1.3 Operational conditions

3.1.3.1 The combination of moderate to high tidal flows and the presence of both natural and artificial hard substrates suggests a heightened potential for both the introduction and onward spread of INNS within the Offshore Project Boundary, as assessed in Section 11.8.6 and Section 11.9.6 of **Chapter 11, Volume 2a**. Implications include:

- Hard-substrate associated INNS (e.g. Japanese skeleton shrimp *Caprella mutica*) are most likely to establish on infrastructure within both the Array Area and OCAS;
- Larval export from established turbine-associated fouling communities may facilitate spread beyond the development footprint;
- Cable installation corridors may act as pathways for dispersal, particularly during periods of peak tidal flow;
- Mobile INNS may exploit coarse and mixed sediments, particularly in sheltered microhabitats formed by cable protection, scour protection, or substrate changes.

3.1.3.2 As a result, management actions should prioritise biosecurity measures that limit initial introduction (e.g., vessel hygiene, equipment cleaning), early detection of fouling communities on hard structures, and monitoring of sensitive habitats near high-flow corridors where dispersal likelihood is greatest.

3.2 STEP 2 – UNDERSTAND HOW INNS CAN BE INTRODUCED OR SPREAD TO YOUR SITE

3.2.1.1 This assessment has been based on publicly available data and literature, as well as professional judgement to complete a site-specific assessment, prior to construction at the detailed design stage. The outline for a risk assessment is provided in **Table 3.1**.



Table 3.1: Risk assessment for INNS introduction from vessels and equipment associated with the Offshore Project

Components	Type	Details and Risk Factors	Risk
Vessels	<p>Anticipated vessel types include:</p> <ul style="list-style-type: none"> • Wind turbine installation vessel or separate transport vessel; • Multi-leg jack-up vessel; • Drilling vessels; • Grout vessel and Pile Supply vessel; • Barges; • Pile install vessel; • Tug/Anchor Handlers; • Cable Lay Installation & Support Vessels; • Guard Vessels; • Seabed preparation vessels for boulder removal, grapnel, pre-sweep/levelling; • Crew Transfer Vessels; • Scour Protection Installation Vessels; • Cable Protection Installation Vessels. <p>Anticipated vessels numbers are:</p> <ul style="list-style-type: none"> • Up to 35 construction/decommissioning vessels on site simultaneously • Up to 10 O&M vessels on site simultaneously and up to 6,332 total lifetime return trips to port 	<p>Vessel size will differ according to phase (e.g. construction, O&M, decommissioning) and/or task as well as the final detailed design requirements. This plan will be updated to reflect detailed information prior to the construction phase.</p> <p>Measures for marine INNS risk mitigation will be applied, complying with the International Maritime Organization (IMO) Ballast Water Management Convention. Additionally, vessels will be required to adhere to the IMO guidelines for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species (Biofouling Guidelines) (resolution MEPC.207(62)). These measures lower the probability of INNS transmission from vessels.</p>	To be determined when vessel and installation specifications have been confirmed.



Components	Type	Details and Risk Factors	Risk
WTGs and Offshore Substation Platform foundations	Fixed bottom WTGs and Offshore Substation Platform.	<p>Utilising the maximum design parameter of 60 smallest WTG type with multi-leg jacket foundations with pin piles or hybrid multi-leg jacket with hybrid gravity base structure (HGBS). This plan will be updated to reflect the constructed number of WTGs and any required Offshore Substation Platform prior to the construction phase.</p> <p>Foundations will be transported to the Offshore Project using multi-leg jack-up vessel.</p>	To be determined when final design and installation specifications have been confirmed.
Array cables and export cable	<p>Array Cables are expected to be 3-core, armoured, and made with insulated copper or aluminium conductors.</p> <p>Export Cables connecting from the Offshore Substation Platform to Transition Joint Bays (TJBs) are expected to be armoured and consist of 3-core cables with copper or aluminium conductors, insulated with cross-linked polyethylene (XLPE), supporting voltages up to 275 kV.</p>	<p>For the purposes of the EIA, the maximum design scenario for Offshore Cable extent on the seabed is defined as 350 km with a diameter of 300 mm. These details will be refined and updated at detailed design stage.</p> <p>Areas of exposed substrate may provide ideal conditions for the settlement of marine INNS. However, studies of artificial substrate placement associated with subsea cables have indicated that colonisation largely occurs by endemic species (OSPAR, 2023).</p>	To be determined when final design and installation specifications have been confirmed.
Scour protection	Types of scour include but are not limited to concrete mattresses, or rock placement.	For the purposes of the EIA, the maximum design scenario for scour protection at each WTG is defined as 3 m in height with a total scour protection volume of 1,440,000 m ³ for the OWF and 4,500 m ³ for an Offshore Substation Platform, if required.	To be determined when final design and installation specifications have been confirmed



Components	Type	Details and Risk Factors	Risk
Cable protection	Types of cable protect include but are not limited to concrete mattresses, or rock placement.	Where cables are surface laid or have a shallow burial depth, cable stabilisation material (pre lay rock carpet) and/or external cable protection methods may be required. For the purposes of EIA, the maximum total volume of hard substrate material introduced is 3,730,000 m The selection of cable protection measures will be dependent upon seabed conditions and any potential interactions with human activities which may occur within the Offshore Project Boundary.	To be determined when final design and installation specifications have been confirmed



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3.3 STEP 3 – IDENTIFYING ACTIVITIES WHICH RISK INTRODUCING INNS

3.3.1.1 **Table 3.2** provides an indicative list of activities in relation to the Offshore Project which may have a significant risk of introducing and/or spreading INNS. This table will be informed from the information in the final Offshore Project design and from Step 2 (Section 3.2).

Table 3.2: Activities associated with the Offshore Project phases with the potential to introduce marine INNS

Project Phase	Activity	Pathway
Construction	Use of vessels during construction	Presence of INNS in any released ballast water or on vessel hull.
	Installation of wind turbines, Offshore Substation Platform and offshore cables along with scour protection.	Introduction of anthropogenic structures.
O&M	Maintaining man-made structures.	Long-term presence of anthropogenic structures and INNS will be detached from subsea structures during maintenance.
	Use of vessels during inspections and repairs.	Presence of INNS in any released ballast water or on vessel hull.
Decommissioning	Use of vessels during structure removal (this will need to be confirmed through consultation)	Presence of INNS in any released ballast water or on vessel hull.
	Cleaning and disposal of biofouling from anthropogenic structures	Long-term presence of anthropogenic structures and INNS will be detached from subsea structures during cleaning/disposal.

Note: this table will be updated with a detailed mitigation strategy in the final version.

3.4 STEP 4 – BIOSECURITY CONTROL MEASURES

3.4.1.1 **Table 3.3** provide information on site-specific risks and control measures in relation to the Offshore Project.

Table 3.3: Biosecurity control measures for the Offshore Project

Project Phase	Activities	Risk	Biosecurity Measure
Construction	Installation of Offshore Project infrastructure (WTG foundation, offshore foundation, scour protection and cable protection)	Introduction of Offshore Project marine infrastructure pose the risk of marine INNS introduction through the colonisation of hard substrate by locally present marine INNS. This can contribute to an increased rate of spread of these species or act as	Any man-made structure to be used for the Offshore Project will be of terrestrial origin (i.e. not coming from another marine environment where it has been submerged or exposed to the sea). If there is a requirement for the structure to come from another marine environment, it will be allowed

Project Phase	Activities	Risk	Biosecurity Measure
		<p>'stepping stones' for introduced species to further establish or expand their range to additional sites (Mineur, <i>et al.</i>, 2012).</p>	<p>to fully dry to kill off any organisms that have attached and will be inspected prior to placement in the marine environment. This measure will occur port-side or on transit vessels.</p> <p>It is also expected that any man-made structures will be painted with anti-fouling paint and marine growth will be removed as detailed in below.</p>
<p>Construction, O&M, decommissioning</p>	<p>Use of vessels</p>	<p>Vessels serve as one of the primary vectors for the spread of INNS around the world.</p> <p>Vessels originating from other areas can carry INNS in their ballast water or attached to the hull. This can result in the introduction of INNS to the Offshore Project area or contribute to the spread of existing INNS.</p>	<p>All Offshore Project vessels shall adhere to the International Convention for the Control and Management of Ships' Ballast Water and Sediments with the aim of preventing the spread of marine INNS (IMO, 2021) and the IMO Guidelines for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species (Biofouling Guidelines) (IMO, 2021).</p> <p>All vessels to be used during construction, operation and maintenance and decommissioning must follow IMO (2012), and where applicable, to comply with IMO (2021), which includes the following standards:</p> <ul style="list-style-type: none"> • Ballast water exchange to be carried out at least 200 nm from the nearest land and in water at least 200 m in depth; • Use of anti-fouling systems, which includes

Project Phase	Activities	Risk	Biosecurity Measure
			<p>the use of coating systems, bio-fouling resistant materials and marine grown prevention systems;</p> <ul style="list-style-type: none"> • In-water inspection of ships and in-water cleaning and maintenance. <p>Implementation of these measures will be ensured by a requirement for all contractors to comply with this INNSMP by the Applicant.</p>
O&M	Cable maintenance and repair	Maintenance and cable repair activities during instances of cable failure, excavation and disturbance from movement of catenary chains, where required, will be carried out using the same or similar methods as the Construction Phase activities, and therefore the potential pathways for introduction of marine INNS are expected to be the same as those identified for the construction phase of the Offshore Project.	Same as construction phase
O&M	Cleaning and disposal of biofouling from structures	There is potential for INNS to detach from subsea structures during routine maintenance activities such as jet washing. Where a risk that operation and maintenance activities may lead to spread of INNS has been identified, additional control measures may be required and will be included in this section.	Where a risk has been identified that operation and maintenance activities may lead to the spread of INNS, control measures may be required to minimise the amount of biofouling material entering the marine environment at the Array Area. These may include collection and disposal of biofouling as per relevant Port Authority "Waste Management Plan", use

Project Phase	Activities	Risk	Biosecurity Measure
			<p>of appropriate anti-fouling coating systems and good maintenance of all equipment, including regularly assessing the need for cleaning and the condition of the anti-fouling coating system (IMO, 2012).</p> <p>Material detached or removed from decommissioned subsea infrastructure will be taken away to be properly disposed of onshore, this is to prevent INNS entering the marine environment. Disposal of biofouling will be aligned with the relevant Port Authority 'Waste Management Plan'.</p> <p>All equipment, materials, machinery, Personal Protection Equipment (PPE) and vessels must be in a clean condition prior to their arrival on site.</p> <p>All contractors will be required to comply with these measures through adherence to the Offshore INNSMP prior to mobilisation to site.</p>
Decommissioning	Decommissioning activities	At the end of the operational life of the Offshore Project, the options for decommissioning will be evaluated. Other Offshore Project constraints will also be taken into consideration (e.g. safety and liability), with the least environmentally damaging option chosen if possible.	<p>It is anticipated that all structures above the seabed will be completely removed. However, a Decommissioning Programme will be prepared prior to the construction and will be reviewed and updated in line with relevant legislation and guidance at the time.</p> <p>The decommissioning sequence will generally be the reverse of the construction sequence and involve similar</p>

Project Phase	Activities	Risk	Biosecurity Measure
			types and numbers of vessels and equipment. The decommissioning duration is anticipated to take a similar amount of time as the construction of the Offshore Project.

3.4.1.2 As a live document, the Offshore INNSMP will continue to be updated to include measures to address the risk of transporting novel parasites, including those potentially carried in vessel bilge water. These risks are managed through adherence to the International Maritime Organization (IMO) Ballast Water Management Convention and associated biosecurity protocols.

3.5 STEP 5 – BIOSECURITY SURVEILLANCE, MONITORING AND REPORTING PROCEDURES

3.5.1.1 A first step in the early detection process is prevention, which can be implemented through visual monitoring of all equipment, materials, and vessels involved in Offshore Project activities for the presence of any potential marine INNS.

3.5.1.2 Relevant staff will be trained in common marine INNS identification¹ and encouraged to report suspicious plant or animal species. If deemed necessary, immediate action will be taken to remove fouling communities and control the spread of present marine INNS. Operations managers will oversee checks regarding marine INNS presence and any cleaning/biofouling disposal. When considering the recommended biosecurity measures and embedded mitigation, it is unlikely that the Offshore Project will contribute to the introduction and spread of INNS.

3.5.1.3 **Table 3.4** outlines proposed biosecurity responsibilities for personnel operating in the Offshore Project.

Table 3.4: Biosecurity and monitoring responsibilities for personnel

Personnel	Task	Location	Project Phase
Environmental Advisor/Manager	Oversee installation of equipment, checking for marine INNS, and assurance of any biofouling disposal in line with relevant guidelines (IMO, 2012). Liaise with local authorities regarding marine INNS awareness and management.	Port	Construction

¹ Example identification guides include: the identification guide for selected marine non-native species (Marine Biological Association, 2020); and non-indigenous species quick reference survey guide (CEFAS, 2020).

Personnel	Task	Location	Project Phase
Principal Contractor	Confirm lack of marine INNS on equipment and materials and application of any anti-fouling measures.	Port	Construction
Principal Contractor	Regular monitor of installation for presence of marine INNS.	Offshore Project Boundary	O&M
Environmental Advisor/Manager	Consultation with regulators to develop and adapt project-specific measures as Offshore Project progresses throughout lifecycle.	N/A	Construction, O&M, Decommissioning
All	Awareness of common marine INNS and ability to report any observations.	N/A	Construction, O&M, Decommissioning

3.6 CONTINGENCY PLAN

3.6.1.1 Even with the most effective preventative and containment measures in place, introduction of marine INNS can still occur. Additionally, introduction may occur as a result of external activities or processes. This section outlines the appropriate measures which will be taken if biosecurity measures fail to prevent the introduction of marine INNS to the Offshore Project Boundary, as recommended by the Payne *et al.*, 2014.

3.6.1.2 **Table 3.5** lists the actions or phases of the contingency plan and who is responsible for each of them.

Table 3.5: Contingency Plan (Payne *et al.*, 2014)

Action	Responsibility
Phase One – Suspected Arrival of High Alert Species	
Collect samples, place in plastic bag and contact the Scottish Environment and Rural Services (SEARS) for advice on where to send the sample. Check and report to: Indicator 11: Invasive non-native species Scotland's environment web	Designated biosecurity officer, site manager, Contractor Environmental Manager or Project Environmental Manager (depending on the phase of the project), or any member of staff at the site of INNS discovery.
Inform harbour users and place marker buoys around area.	Harbour Master/staff.
Phase Two – Presence of High Alert Species Confirmed	
Initiate immediate containment measures, including restricted vessel movements.	Designated biosecurity officer, site manager, Contractor Environmental Manager or Project Environmental Manager (depending on the phase of the project).
Carry out wider survey of vessels and structures using underwater camera.	Designated biosecurity officer, qualified ecologist.

Action	Responsibility
Phase Three – Eradication/Employ Long Term Control Measures	
Seek advice from INNS Scotland on appropriate measures and actions for long term control.	Biosecurity Office Manager, Environmental Manager and Contractor Environmental Manager.

3.7 MONITORING AND REVIEW

3.7.1 Monitoring and Implementation of the Plan

3.7.1.1 As part of the Offshore INNSMP, a logbook will be developed to keep a clear record of any checks or actions taken and list the formal steps to ensure the Biosecurity Manager is quickly informed of any potential introduction of INNS.

3.7.1.2 Payne *et al.* (2014) provides examples of information to be recorded in the logbook which include:

- Routine inspections of equipment and vessels for INNS;
- Specific biosecurity measures if INNS are found at site;
- Application of antifouling or cleaning of equipment and vessel;
- Action taken when informed of a potential 'high risk'; and awareness raising events.

3.7.1.3 All records entered will be given a date and signed by the Biosecurity Manager.

3.7.1.4 As this live document is progressed, the information to be recorded will be adapted to be appropriate to the Offshore Project.

3.7.2 Plan Review

3.7.2.1 The Offshore INNSMP will be reviewed regularly to ensure it stays up to date and relevant. It is proposed that this plan will be reviewed, as a minimum, every 12 months during the construction phase, but potentially more frequently depending on need, and as agreed with MD-LOT.

3.7.2.2 The Offshore INNSMP will be updated following completion of the construction phase and at the beginning of the O&M phase to ensure the plan is appropriate for the next phase of the development and the risks/activities associated with that next phase. During the O&M phase, the Offshore INNSMP will be updated regularly (as a minimum every 5 years). Prior to the decommissioning phase the Offshore INNSMP will be reviewed and updated to ensure all measures are appropriate and that any changes in the environment and risk of INNS (e.g. records of INNS on site) are reflected in the Offshore INNSMP.

4 GLOSSARY OF TERMS AND ABBREVIATIONS

4.1.1.1 A list of key terms and acronyms used in this Offshore INNSMP are provided in **Table 4-1** and **Table 4-2**.

Table 4-1 Acronyms and abbreviations

Term	Definition
ECoW	Environmental Clerk of Works
EIAR	Environmental Impact Assessment Report
FMMCP	Fisheries Mitigation, Monitoring and Communication Plan
GBS	Gravity Base Structure
HACCP	Hazard Analysis and Critical Control Point
IMO	International Maritime Organisation
INNS	Invasive Non-Native Species
INNSMP	Invasive Non-Native Species Management Plan
MD-LOT	Marine Directorate - Licensing Operations Team
MHWS	Mean High Water Springs
MMMP	Marine Mammal Mitigation Plan
O&M	Operation and Maintenance
OCAS	Offshore Cable Area of Search
OWF	Offshore Wind Farm
PPE	Personal Protection Equipment
TJB	Transition Joint Bay
WTG	Wind Turbine Generator

Table 4-2 Glossary

Term	Meaning
Array Area	Total area within which offshore wind turbine generators (WTGs), associated foundations, Array Cables and Offshore Substation Platform (if required) will be located.
Array Cables	The offshore cables that connect the WTGs to each other and terminate at the Offshore Substation Platform, (if required)
Environmental Impact Assessment Report (EIAR)	The Environmental Impact Assessment Report (EIAR) prepared to assess the likely significant effects of the Project on the environment.
Impact	Change that is caused by an action; for example, land clearing (action) during construction which results in habitat loss (impact).
Offshore	Pertaining to seaward of Mean Low Water Springs (MLWS).
Offshore Cables	Electrical and communication cables located within the Offshore Cable Area of Search and Array Area.
Offshore Cable Area of Search (OCAS)	The area within which the offshore cable infrastructure between the Array Area and Landfall will be located.

Term	Meaning
Offshore Project	<p>The offshore components of the Spiorad na Mara offshore wind farm (the Project) located seaward of Mean High Water Springs (MHWS).</p> <p>The Offshore Project is the subject of this application.</p>
Offshore Project Boundary	The 'red line boundary' encompassing the Offshore Project.
Offshore Substation Platform	<p>The optional offshore substation located within the Array Area. Includes the platform and associated components which allows the voltage to be increased to meet onward transmission requirements.</p>
Project	The Spiorad na Mara offshore wind farm development. This term describes the whole development, including all offshore and onshore components.
The Applicant	Spiorad na Mara Limited (the Offshore Project owner).
Turbine Area	A reduced area within the Array Area where above water surface infrastructure would be located i.e. Wind Turbine Generators (WTG) or Offshore Substation Platform (OSP). Developed and refined through environmental assessment.
Wind Turbine Generator (WTG)	The wind turbines that generate electricity consisting of tubular towers and blades attached to a nacelle housing mechanical and electrical generating equipment

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