



Morven Hawthorn Pit Grid Connection Project

Preliminary Environmental Information Report

Approach to Marine Protected Area / Marine
Conservation Zone and Highly Protected Marine
Area Assessments

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Glossary

Term	Meaning
the Applicant	The legal entity making the applications for consent; Morven Offshore Wind Limited (MvOWL).
Benthic ecology	Benthic ecology encompasses the study of the organisms living in and on the sea floor, the interactions between them and impacts on the surrounding environment.
Biotope	The combination of physical environment (habitat) and its distinctive assemblage of characterising species.
Cetacean	Aquatic mammals constituting the infraorder Cetacea (whales, dolphins, porpoises).
Circalittoral	The region from the lower limit of the infralittoral zone to the maximum depth at which photosynthesis is still possible.
Commitments	Measures (embedded mitigation and secondary) to be adopted during the construction, operation and maintenance, and decommissioning phases of the MHPGC Project.
Cumulative effect	The combined effect of the MHPGC Project in combined with the effects from other proposed developments, on the same receptor or resource.
Cumulative effects assessment	Assessment of likely effects arising from the MHPGC Project alongside the likely effects arising from other proposed developments on the same receptor or resource.
Demersal fish species	Fish species that live near or on the seabed. Includes species such as haddock, cod, whiting and flatfish.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent.
Environmental Impact Assessment (EIA)	The process of identifying and assessing the significant effects likely to arise from a project. This requires consideration of the likely changes to the environment, where these arise as a consequence of a project, through comparison with the existing and projected future baseline conditions.
Habitat	The environment that a plant or animal lives in.
Habitats Directive	Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (the Habitats Directive) is the European Union Directive from which the requirement for the consideration of potential impacts of the MHPGC Project upon European sites and sites designated within the National Site Network is derived.
Highly Protected Marine Area (HPMA)	Areas of the sea (including the shoreline) that allow the protection and full recovery of marine ecosystems. HPMA's protect all species and habitats and associated ecosystem processes within the site boundary, including the seabed and water column.
Impulsive sound	Sound which is typically transient, and brief with rapid rise time and rapid decay
Intertidal area	The area between Mean High Water Springs (MHWS) and the Mean Low Water Springs (MLWS).

Term	Meaning
Invasive non-native species (INNS)	Species introduced outside their natural range that spread rapidly and cause harm to the environment, economy or human health. They often outcompete native species and disrupt ecosystems.
Landfall	The area in which the offshore export cables make landfall (come onshore) and the transitional area between the offshore cabling and the onshore cabling. This term applies to the entire landfall area between the trenchless technique exit pits and the transition joint bay inclusive of all construction works.
Marine Conservation Zone (MCZ)	An area designated under the Marine and Coastal Access Act 2009 in English waters for the purpose of conserving marine flora, fauna, habitats, or features of geological or geomorphological interest.
Marine licence	A marine licence permits the undertaking of different activities in the marine environment, including construction, the deposition or removal of substances or objects from the seabed, and dredging. A Marine and Coastal Access Act 2009 requires a marine licence to be obtained for licensable marine activities within the Scottish offshore region (12nm – 200nm) and in English offshore and inshore regions (noting that deemed marine licences will be included within the Development Consent Order application).
Marine Protected Area (MPA)	An area of the sea designated by Scottish Ministers under the Marine (Scotland) Act 2010 or the UK Marine and Coastal Access Act 2009 in Scottish waters for the purpose of conserving marine biodiversity, geodiversity, or historic assets of national importance.
MHPGC Project Marine Protected Area (MPA) and Marine Conservation Zone (MCZ) Assessment	The MPA and MCZ Assessment is a process used to evaluate whether a proposed activity could have a significant impact on designated nature conservation MPAs (in Scotland) or MCZs and Highly Protected Marine Areas (HPMA) (in England). It ensures that the development does not hinder the conservation objectives of the protected features of these sites, as required under the Marine (Scotland) Act 2010 (Scotland) and the Marine and Coastal Access Act 2009 (Scotland and England). The MCZ/MPA Assessment for the MHPGC Project will consider whether the activities subject to the relevant application (i.e. activities subject to a marine licence application and DCO consent) can hinder the conservation objectives of a protected feature in a nature conservation MPA, MCZ or HPMA.
Mean High Water Springs (MHWS)	The average tidal height throughout the year of two successive high waters during those periods of 24 hours when the range of the tide is at its greatest.
Marine Directorate Licensing Operations Team (MD-LOT)	The part of the Scottish Government's Marine Directorate responsible for assessing and administering applications for marine licences and Section 36 consent (offshore) in Scotland.
Marine Management Organisation (MMO)	As a UK government body, the MMO is responsible for licensing, regulating and overseeing activities in the marine environment for English waters. For a DCO and deemed marine licence, MMO acts as a statutory consultee, advising on marine planning, environmental impacts, habitats and compliance with marine licensing regulations
Maximum Design Scenario (MDS)	The maximum design scenarios from project design envelope likely to result in the greatest impact on a particular topic receptor.

Term	Meaning
MHPGC Project PEIR Red Line Boundary	Spatial extent used to define the environmental assessment within the PEIR. The area within which all components of the MHPGC Project will be located, including areas required on a temporary basis during construction and/or decommissioning (such as construction compounds).
MHPGC Project Scoping Boundary	The spatial extent of the area used to define the environmental baseline to inform impact assessments at the time the Scoping Report was submitted.
MHPGC Project Scoping Opinions	Separate scoping opinions received from the Planning Inspectorate (on behalf of the Secretary of State) and MD-LOT (on behalf of the Scottish Ministers) and the Marine Management Organisation (MMO) in response to the MHPGC Scoping Report. The MHPGC Scoping Opinions contain the range of issues that the Planning Inspectorate, and MD-LOT in consultation with statutory stakeholders, have identified should be considered within the Environmental Impact Assessment process.
MHPGC Project Scoping Report	Report dated February 2025 scoping the likely significant effects of the MHPGC Project on the environment, submitted to the Scottish Ministers via the Marine Directorate: Licencing Operations Team (MD-LOT) and the Secretary of State via the Planning Inspectorate in England.
MHPGC Project Preliminary Environmental Information Report (PEIR)	Report that provides a preliminary assessment of likely significant environmental effects of the MHPGC Project on the physical, biological, and human environment during construction, operations and maintenance and decommissioning phases. The PEIR is published prior to the preparation of the Environmental Statement and is based on currently available information and is used to inform statutory consultation under section 42 of the Planning Act 2008.
Morven Hawthorn Pit Grid Connection Project	The MHPGC Project is comprised of the offshore export cables in Scottish and English waters from the Morven North or the Morven South offshore substation platform(s) (OSP), landfall, onshore export cables, the onshore land substation (LSS) and AC connection cables. Also referred to in this report as the MHPGC Project, for ease of reading.
Morven North Offshore Wind Array Project ('Morven North')	The Morven North Offshore Wind Array Project (Morven North) entirely in Scottish waters, which includes the wind turbines and foundations, offshore substation platforms (OSP(s)) and foundations, inter-array and inter-connector cables and associated infrastructure located within the Morven North Boundary.
Morven South Offshore Wind Array Project ('Morven South')	The Morven South Offshore Wind Array Project (Morven South) entirely in Scottish waters, which includes the wind turbines and foundations, OSP(s) and foundations, inter-array and inter-connector cables and associated infrastructure located within the Morven South Boundary.
Morven North Offshore Wind Array Project and Morven South Offshore Wind Array Project ('Morven North and Morven South')	Morven North and Morven South comprises the Morven North Offshore Wind Array Project and the Morven South Offshore Wind Array Projects collectively.

Term	Meaning
National Grid Hawthorn Pit Substation	The National Grid substation at Hawthorn Pit, County Durham, which the AC connection cables will connect into from the onshore land substation.
NatureScot (NS)	NS is the Scottish Government's nature agency responsible for protecting and promoting Scotland's natural heritage. For a marine licence in Scottish waters, NS advises on impacts to Scottish habitats, species, and designated sites.
Natural England (NE)	NE is the UK Government's statutory adviser on the natural environment, focusing on conserving biodiversity, landscapes, and access to nature. For a DCO and marine licence, NE provides statutory and technical advice to competent authorities on designated sites, habitats, and protected species, supporting environmental assessment and decision-making.
Offshore	The area beyond 12nm, extending out to the United Kingdom's continental shelf
Offshore export cables	High voltage direct current (HVDC) cables which bring electricity from either the Morven North OSP or the Morven South OSP to the transition joint bay (TJB) at landfall.
Offshore export cable corridor	The proposed offshore area in which the offshore export cables will be laid, from either the Morven North OSP or Morven South OSP to the TJB at landfall.
Offshore substation platforms (OSP(s))	OSP(s) comprise the support structure, topside and electrical components used for collecting the electricity generated by the wind turbine generators, in Scottish waters, for the passage or transmission to landfall. These OSP(s) can be divided into two types: • HVAC (High Voltage Alternating Current) collector substations; • HVDC (High Voltage Direct Current) converter substations.
Ornithology	The study of birds, their behaviour, physiology and taxonomy.
Pelagic fish	Fish which live within the water column, not on or near the seabed or at the coasts. Examples include herring, mackerel and sprat.
Planning Inspectorate (PINS)	The PINS is an executive agency of the UK Government responsible for administering and examining DCO applications for NSIPs in England. PINS manages the application process, oversees consultation and examination, and makes a recommendation to the relevant Secretary of State on whether consent should be granted.
Polyaromatic hydrocarbons (PAH)	A class of chemicals that occur naturally in coal, crude oil, and gasoline.
Polychaete	Polychaetes are class of generally marine annelid worms. They are segmented, with many bristles, or chaete, and are commonly called bristle worms.
Polychlorinated biphenyls (PCB)	They belong to a broad family of human-created organic chemicals known as chlorinated hydrocarbons. Although most were banned in 1986, they linger on in detectable levels in animals, fish and humans.

Term	Meaning
Primary mitigation	Modifications to the location or design of the MHPGC Project made during the pre-application phase that are an inherent part of the MHPGC Project and do not require additional action to be taken. This includes modifications arising through the iterative design process. These measures will be secured through the consent itself through the description of the MHPGC Project, the parameters and associated commitments secured by the DCO and marine licence, or both.
Secondary mitigation	Actions that will require further activity to achieve the anticipated outcome and may be imposed as part of the planning consent, or through inclusion in the ES. These include measures required to reduce the significance of environmental effects and may be secured through an environmental management plan. For secondary mitigation measures, both pre-mitigation and residual effects are presented.
Spawning grounds	The areas of water or seabed where fish/shellfish spawn or produce their eggs.
Species	A group of living organisms that share common characteristics and can interbreed to produce fertile offspring. Members of a species have similar genetic makeup and are classified under the same scientific name.
Study Area	For each environmental topic, the baseline environment will be characterised, and the likely significant effect will be described within a topic-specific Study Area. Specific Study Areas are defined for each topic and are based on the maximum spatial extent across which likely significant effects of the MHPGC Project may be experienced by the relevant receptors (i.e. Zone of Influence).
Sublittoral	Area extending seaward of low tide to the edge of the continental shelf.
Subtidal	An area below lowest astronomical tide that is always submerged by water.
Temporary Threshold Shift (TTS)	A recoverable reversible increase in the threshold of audibility.
Tertiary mitigation	Actions that would occur with or without input from the EIA process feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects.
Tidal cycle	One high tide plus a successive low tide.
Trenchless techniques	The installation of electrical circuits and/or cables in cable ducts for the MHPGC Project in certain areas by means of boring techniques including direct pipe or horizontal directional drilling. Direct pipe is a cable installation technique which involves the use of a mini (or micro) tunnel boring machine and a hydraulic (or other) thruster rig to directly install a steel pipe between two points. Horizontal directional drilling refers to a trenchless technique for installing cables and cable ducts involving drilling in an arc between two points.
Zone of influence	The area within which impacts arising from the MHPGC Project could occur upon receptors.

Acronyms

Unit	Meaning
AC	Alternating Current
CBRA	Cable Burial Risk Assessment
CEA	Cumulative Effects Assessment
Cefas	Centre for Environment, Fisheries and Aquaculture Science
COLREG	The International Regulations for Preventing Collisions at Sea
CMS	Construction Method Statement
CSIP	Cable Specification and Installation Plan
DAS	Discretionary Advice Service
DCO	Development Consent Order
Defra	Department for Environment Food and Rural Affairs
EA	Environment Agency
EDR	Effective Deterrence Range
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMF	Electromagnetic Fields
EMP	Environmental Management Plan
EPS	European Protected Species
ES	Environmental Statement
EUNIS	European Union Nature Information System
EWG	Expert Working Group
FeAST	Feature Activity Sensitivity Tool
GIS	Geographic Information System
HDD	Horizontal Directional Drilling
HPMA	Highly Protected Marine Area
ICES	International Council for the Exploration of the Sea
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IAMMWG	Inter-Agency Marine Mammal Working Group
IEMA	Institute of Environmental Management and Assessment
IMO	International Maritime Organization
INNS	Invasive Non-Native Species
JNCC	Joint Nature Conservation Committee
LSS	Landing Substation
MCAA	Marine and Coastal Access Act

Unit	Meaning
MAGIC	Multi-Agency Geographic Information for the Countryside
MarESA	Marine Evidence based Assessment
MarLIN	Marine Life Information Network
MBP	Marine Biosecurity Plan
MCZ	Marine Conservation Zone
MD-LOT	Marine Directorate – Licencing and Operations Team
MDS	Maximum Design Scenario
MEEB	Measures of Equivalent Environmental Benefit
MHPGC	Morven Hawthorn Pit Grid Connection
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Management Organisation
MPA	Marine Protected Area
MPCP	Marine Pollution Contingency Plan
MU	Management Unit
NC MPA	Nature Conservation Marine Protected Area
NE	Natural England
NEQ	Net Explosive Quantity
NS	NatureScot
NSIP	Nationally Significant Infrastructure Project
OEMP	Offshore Environmental Management Plan
OIPMP	Offshore In-Principal Monitoring Plan
O&M	Operations and Maintenance
OSP	Offshore Substation Platform
OSPAR	Oslo and Paris Convention for the Protection of the Marine Environment of the North-East Atlantic
OWF	Offshore Wind Farm
PEIR	Preliminary Environmental Information Report
PINS	The Planning Inspectorate
PMF	Priority Marine Feature
RIAA	Report to Inform Appropriate Assessment
RLB	Regional Localised Buffer
SAC	Special Area of Conservation
SNCB	Statutory Nature Conservation Body
SOLAS	Safety of Life at Sea
SoS	Secretary of State

Unit	Meaning
SPA	Special Protection Area
SSC	Suspended Sediment Concentrations
SuDS	Sustainable Drainage Systems
TJB	Transition Joint Bay
TTS	Temporary Threshold Shift
UK	United Kingdom
UXO	Unexploded Ordnance
VER	Valued Ecological Receptor
VHF	Very High-Frequency
VTMP	Vessel Traffic Management Plan
ZoI	Zone of Influence

Units

Unit	Meaning
%	Percent
cm	Centimetre
dB	Decibel
g	Gram
ha	Hectare
km	Kilometre
kV	Kilovolts
m	Metre
mm	Millimetre
nm	Nautical mile
µg	Microgram

Executive Summary

This Report presents the Approach to Marine Protected Area (MPA), Marine Conservation Zone (MCZ) and Highly Protected Marine Area (HPMA) Assessments for the Morven Hawthorn Pit Grid Connection Project (referred to as 'the MHPGC Project'). The MHPGC Project seeks to establish a grid connection between the Morven North or Morven South Offshore Wind Array Projects (hereafter 'Morven North' and 'Morven South'), located approximately 61km at its closest point from the Aberdeenshire coast in Scottish waters, and the National Grid Hawthorn Pit Substation in northeast England.

The purpose of this Report is to inform the screening stage of the MPA and MCZ Assessment process. This Report presents the approach to the assessment for Stage 1 that will be used to determine whether there is a significant risk of hindering the achievement of the conservation objectives of an MPA or MCZ during the construction, operation and maintenance (O&M) and decommissioning phases of the MHPGC Project. The Report also presents the approach to screening and assessment for the North East of Farnes Deep HPMA, which will be submitted in full with the application for development consent and Marine Licence application(s) to the Scottish Ministers.

The assessment process for MCZs is outlined by the Marine Management Organisation (MMO) guidance (2013) and for MPAs in Scottish waters is outlined by Planning Scotland's Seas: Marine Protected Areas Draft Management Handbook (Marine Scotland, 2014). There is no single comprehensive national framework for MPA and MCZ assessments, however both sets of guidance follow the same staged assessment principles. This report outlines the legislative requirement for an MPA (Scotland) and MCZ (England) Assessment, the potential impacts associated with the MHPGC Project, as well the screening and approach to Stage 1 of the MPA and MCZ Assessment.

There is currently no detailed guidance available for undertaking assessments of HPMA, which represent a higher level of protection applied to MCZ designations in English waters. Accordingly, this Report presents a screening and ecosystem-level assessment approach designed to provide the information necessary to determine whether the MHPGC Project could pose a risk to the conservation objectives of the North East of Farnes Deep HPMA.

In the initial screening stage, a regional approach was adopted to identify sites requiring consideration within the assessment. This comprised eight Scottish Nature Conservation MPAs (NC MPAs), nine MCZs and one HPMA within the North Sea region. Applying receptor-specific screening distances based on the maximum zone of influence (Zoi) for relevant protected features (marine mammals, benthic ecology, fish and shellfish, and marine ornithology), one Scottish NC MPA, two MCZs and one HPMA were screened in for further assessment.

MPA (Scotland) Screening and Stage 1 Assessment

The MPA (Scotland) screening, screened in the Firth of Forth Banks Complex NC MPA for the Stage 1 Assessment (**Figure 5.1**). The MPA is designated for offshore subtidal sands and gravels, ocean quahog (*Arctica islandica*) aggregations, shelf banks and mounds, and moraines representative of the Wee Bankie key geodiversity area.

Only the Montrose Bank parcel of the Firth of Forth Banks Complex NC MPA falls within the maximum potential Zoi for benthic habitats and species, and therefore only protected features present within this parcel (offshore subtidal sands and gravels, ocean quahog aggregations) will be considered in the Stage 1 Assessment. The Firth of Forth Banks Complex NC MPA is screened in for increased suspended sediment concentrations (SSC) and associated deposition and increased risk of introduction and spread of invasive non-native species (INNS).

MCZ (England) Screening and Stage 1 Assessment

The MCZ (England) screening, screened in the Farnes East MCZ and North East of Farnes MCZ for the Stage 1 Assessment (**Figure 5.1**).

The Farnes East MCZ is designated for ocean quahog, seapen and burrowing megafauna communities, and a variety of sediment types. It is screened in for increased SSCs and associated deposition, and increased risk of introduction and spread of INNS.

The North East of Farnes Deep MCZ is designated for ocean quahog and a variety of sediment types. It was screened in for increased SSCs and associated deposition and increased risk of introduction and spread of INNS.

HPMA Screening and Assessment

The North East of Farnes Deep HPMA shares a boundary and overlaps entirely with the North East of Farnes Deep MCZ and extends the protections of the site to the entire marine ecosystem of the area (**Figure 5.1**). An approach to screening and assessment for this HPMA is proposed in this Report, which includes an initial screening assessment to identify whether there are any plausible pathways through which the MHPGC Project could interact with the North East of Farnes Deep HPMA and its conservation objectives. The screening approach will adopt the same receptor-based methodology applied to MCZ and MPA features whilst recognising the broader ecosystem focus of HPMA's.

In the context of a HPMA, where the conservation objective is focused on ecosystem recovery and functioning, it is important that not only direct or indirect effects on individual features are understood but also how impacts could propagate through the wider ecosystem. An ecosystem-led assessment rather than a traditional receptor-by-receptor assessment is therefore also proposed. This proposed HPMA assessment will take a deeper and more holistic approach to assessing the impacts of the MHPGC Project on the wider marine ecosystem of the HPMA and which will be undertaken and submitted in support of the application for development consent and Marine Licence application(s) to the Scottish Ministers.

1 Introduction

1.1 Overview

- 1.1.1.1 This Report presents the Marine Protected Area (MPA), Marine Conservation Zone (MCZ) Screening and approach to Stage 1 assessment and the approach to screening and assessment of Highly Protected Marine Areas (HPMAs) for the Morven Hawthorn Pit Grid Connection Project (referred to as the 'MHPGC Project'). This Report has been prepared to support the Preliminary Environmental Information Report (PEIR) for the MHPGC Project.
- 1.1.1.2 This Report has been prepared to provide the screening and assessment methodology to assess whether the potential impacts of the MHPGC Project will give rise to a significant risk of hindering the conservation objectives for the protected features of any screened in MPA, MCZ or HPMA. The Report will support the relevant consent applications to Scottish and English administrations, on behalf of Morven Offshore Wind Limited (hereafter referred to as 'the Applicant').
- 1.1.1.3 In Scotland, the marine licence application(s) will be submitted to the Marine Directorate - Licencing Operation Team (MD-LOT), in accordance with the Marine and Coastal Access Act 2009 (MCAA) (HM Government, 2009). In England, a Development Consent Order (DCO) application will be submitted to the Planning Inspectorate (PINS) on behalf of the Secretary of State, pursuant to Planning Act 2008 (HM Government, 2008). NatureScot (NS), Natural England (NE) and the Joint Nature Conservation Committee (JNCC) are the relevant statutory nature conservation bodies (SNCBs) for the applications.
- 1.1.1.4 The Report presented is informed by the following technical chapters:
- **Volume 1, Chapter 2: Project Description, of the PEIR;**
 - **Volume 1, Chapter 4: Approach to Environmental Impact Assessment, of the PEIR;**
 - **Volume 1, Chapter 5: Policy and Legislation, of the PEIR;**
 - **Volume 2, Chapter 1: Physical Processes, of the PEIR;**
 - **Volume 2, Chapter 3: Benthic Subtidal and Intertidal Ecology, of the PEIR;**
 - **Volume 2, Chapter 4: Fish and Shellfish Ecology, of the PEIR;**
 - **Volume 2, Chapter 5: Marine Mammals, of the PEIR;**
 - **Volume 2, Chapter 6: Marine Ornithology, of the PEIR.**
- 1.1.1.5 The Report also draws on information contained within the following annexes:
- **Volume 1, Annex 4.1: Draft Commitments Register, of the PEIR;**
 - **Volume 2, Annex 1.2: Model Design, Validation and Results, of the PEIR;**
 - **Volume 2, Annex 3.1: Benthic Ecology Technical Report, of the PEIR;**
 - **Volume 2, Annex 4.1: Herring and Sandeel Spawning Assessment, of the PEIR;**
 - **Volume 2, Annex 5.1: Underwater Sound Modelling Report.**
- 1.1.1.6 It should be noted that although the term 'MPA' is commonly used as an umbrella term encompassing a range of marine designations including other marine designations that fall within the broader MPA network, such as Special Protection Areas (SPAs) and Special Area of Conservation (SACs), in this report MPA refers specifically to the Nature Conservation Marine Protected Areas (NC MPAs), a designation used in Scotland.

1.2 Purpose of this Report

- 1.2.1.1 This Report presents the screening outcomes and assessment methodology for the MPA, MCZ and screening and assessment methods for the HPMA assessments for the MHPGC Project. The Report has been prepared to support the PEIR application and by identifying designated sites that may be affected by the MHPGC Project and establishing an appropriate framework for assessing the risk of the activity hindering the conservation objectives.
- 1.2.1.2 The Report documents the screening process undertaken for MPAs, MCZs and the North East of Farnes Deep HPMA, identifies those sites requiring further assessment, and sets out the proposed approach to Stage 1 assessment for screened-in MPAs and MCZs. In addition, recognising the enhanced protection afforded to HPMAs and the absence of detailed assessment guidance, the

Report defines an ecosystem level assessment approach for the North East of Farnes Deep HPMA. This approach is designed to evaluate not only direct and indirect effects on individual receptors, but also the potential implications for ecological processes, ecosystem functioning and the achievement of the HPMA conservation objectives.

1.3 Project Background

1.3.1.1 For the purposes of this Report all MHPGC Project infrastructure and activities assessed will be located within the MHPGC Project PEIR Red Line Boundary, seaward of MHWS, encompassing all offshore infrastructure associated with the MHPGC Project.

1.3.1.2 The key offshore components of the MHPGC Project located within the MHPGC Project PEIR Red Line Boundary seaward of mean high water springs (MHWS), will include the following:

- A maximum of four offshore cables, comprising two (2) High Voltage Direct Current (HVDC) power cores forming one (1) cable circuit, with up to two (2) fibre optic cables, extending from the Offshore Substation Platforms (OSPs) associated with Morven North or Morven South to Transition Joint Bays (TJBs) above MHWS:
 - The offshore export cable corridor will have a maximum length of up to 324.67 km, extending from the OSP in either Morven North or Morven South to the trenchless drill exit pit (up to 98km in Scottish waters and 226.67 km in English offshore and inshore waters).
 - The offshore export cables will have a maximum voltage of 320 kilovolts (kV).
 - The offshore export cables are to be buried in up to two trenches.
 - Installation methods include jet trenching, mechanical cutting, controlled flow excavation, and/or ploughing.
 - The minimum target offshore export cables burial depth is 0.5m.
- Cable protection will be used where the target burial depth is not achievable. Cable protection may comprise concrete mattresses, rock bags, rock installation and/or, cable protection systems.
- Pre-construction geophysical and geotechnical surveys will be undertaken prior to construction.
- Seabed preparation (such as seabed levelling, removing surface and subsurface debris) will be required prior to offshore export cables installation. Methods such as sandwave clearance, pre-lay grapnel run, boulder/debris clearance, ploughing/pre-lay trenching and rock carpet may be employed.
- Unexploded ordnance (UXO) will be avoided where possible, through survey investigations, microrouting, or the recovery of the UXO for disposal at an alternative location. Industry best practice standards will be adopted. Low order (deflagration) UXO clearance is the preferred option and the Applicant is not seeking consent for high order clearance. If high order (detonation) UXO clearance is required, this will be considered post-determination as a separate Marine Licence application to either the MMO or MD-LOT. However, a maximum design envelope for UXO detonation of up to 22 low order clearance events will be considered within this Report.
- Trenchless techniques at landfall. The cable will be installed beneath the intertidal area using trenchless techniques such as horizontal directional drilling (HDD) or other trenchless techniques.

1.3.1.3 For further information on the project description and construction methods please see **Volume 1, Chapter 2: Project Description, of the PEIR**.

1.3.2 Operation and Maintenance

1.3.2.1 Operation and Maintenance (O&M) activities will take place during the operational phase of the MHPGC Project and could include routine inspection, maintenance and surveys, remedial works and repairs. Further information on O&M is provided in **Volume 1, Chapter 2: Project Description, of the PEIR**.

1.3.3 Decommissioning

- 1.3.3.1 At the end of the operational lifetime (assumed to be 35 years), the MHPGC Project will be decommissioned. Closer to the decommissioning date, detailed offshore decommissioning plans will be developed in line with the regulations, requirements, guidance and best practice relevant at that time. Further information on decommissioning is provided in **Volume 1, Chapter 2: Project Description, of the PEIR**.

1.3.4 Programme

- 1.3.4.1 For the purposes of assessment, it is anticipated that the construction of the MHPGC Project would commence no earlier than 2032. The Applicant also anticipates that the MHPGC Project will be fully operational by 2038.
- 1.3.4.2 The operational design life of the MHPGC Project is 35 years.

1.4 Commitments Adopted as Part of the MHPGC Project

- 1.4.1.1 The MHPGC Project has been developed in accordance with the mitigation hierarchy, seeking in the first instance to avoid and minimise potential impacts on marine ecology through project design and the incorporation of embedded mitigation measures.
- 1.4.1.2 As set out in Volume 1, Chapter 4: Approach to Environmental Impact Assessment, of the PEIR and Volume 1, Annex 4.1: Draft Commitments Register, of the PEIR, several measures have been adopted as part of the MHPGC Project to avoid or reduce project impacts, including those that could affect the MPAs and MCZs.
- 1.4.1.3 Embedded mitigation includes the following measures, as identified in the Institute of Environmental Management and Assessment (IEMA) Guide to Shaping Quality Development (IEMA, 2015):
- Primary mitigation: measures included as part of the project design. IEMA describes these as “modifications to the location or design of the development made during the pre-application phase that are an inherent part of the project and do not require additional action to be taken”. This includes modifications arising through the iterative design process. These measures will be secured through the consent itself through the description of the project and the parameters secured in the DCO and marine licence, or both;
 - Tertiary mitigation: IEMA describes these as “actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects”.
- 1.4.1.4 Embedded mitigation measures that will form part of the final design (or are established legislative requirements/good practice, or both) have been taken into account as part of the initial screening of impact pathways presented in **Section 5.4**. This ensures that the measures that the Applicant is committed to are considered in the assessment of effects.
- 1.4.1.5 In principle, where a Stage 1 assessment identifies the potential for significant risk, secondary mitigation measures may be applied. These are measures that could further prevent, reduce and, where possible, offset these effects. They are defined by IEMA as “actions that will require further activity to achieve the anticipated outcome” and may be imposed as part of the planning consent, or through inclusion in the Environmental Statement (ES). These include measures required to reduce the significance of environmental effects and may be secured through an environmental management plan. For secondary mitigation measures both pre-mitigation and residual effects can be presented.
- 1.4.1.6 The embedded measures relevant to the MPAs/MCZs are outlined in **Table 1.1** and in **Volume 1, Annex 4.1: Draft Commitments Register**, of the PEIR. As there is a secured commitment to implementing primary and tertiary measures, they are considered an inherent part of the design of the MHPGC Project and have therefore been considered as such in the screening assessment presented in **Section 5.2**.

Table 1.1: Embedded commitments relevant to the MPA/MCZ Screening and Stage 1 assessment implemented as part of the MHPGC Project

Commitment number	Measure adopted	How the measure will be secured
CoT06	An Outline Offshore Environmental Management Plan (OEMP) will be prepared and submitted with the application for development consent and as part of the marine licence application (s) to the Scottish Ministers. A Detailed OEMP will be developed substantially in accordance with the Outline OEMP and submitted and approved by the MMO and MD-LOT. The Outline Offshore EMP will include: • an Outline Marine Biosecurity Plan; • an Outline Marine Pollution Contingency Plan (MPCP); • an Outline Fisheries Liaison and Co-existence Plan; • an Outline Marine Mammal Mitigation Protocol (MMMP); • an Outline Vessel Traffic Management Plan (VTMP); • an Outline Navigational Safety Plan; • a chemical risk assessment that specifies when and how chemicals will be used, stored, and transported, in line with recognised best-practice guidance; • a dropped-object protocol will be established to cover the reporting and recovery of any items lost overboard that could endanger other sea users; • a Marine Emergency Action Card outlining the steps to be followed in the case of a marine emergency • provisions for the handling and disposal of waste.	The measure will be secured via a condition in the Deemed Marine Licence and Scottish Marine Licences.
CoT07	An Outline Offshore Operations and Maintenance Plan will be prepared and submitted as part of the application for development consent and as part of the marine licence application (s) to the Scottish Ministers. A detailed Offshore Operations and Maintenance Plan(s) will be produced substantially in accordance with the outline plan, prior to entering the operation and maintenance phase.	The measure will be secured via a condition in the Deemed Marine Licence and Scottish Marine Licences
CoT08	An Outline Offshore Cable Specification and Installation Plan (CSIP) will be prepared and submitted with the application for development consent and as part of the marine licence application(s) to the Scottish Ministers. It will include cable burial to be the preferred option for cable protection, where practicable. A detailed CSIP will be developed substantially in accordance with the Outline CSIP. The Outline CSIP will include (but is not limited to): • a Cable Burial Risk Assessment (CBRA), which will define burial depths and safeguards, based on seabed conditions and external aggression and climate change hazards, to keep the cable protected and compliant through all project phases while upholding navigational and environmental safety; • the implementation, management and monitoring of cable protection; • details on the development of cable installation and protection design within the Farn Deep's Nephrops ground, which will seek to maximise cable burial and minimise the requirement for	The measure will be secured via a condition in the Deemed Marine Licence and Scottish Marine Licences

Commitment number	Measure adopted	How the measure will be secured
	external cable protection, where technically feasible, taking account of cable stability, integrity and other engineering requirements.	
CoT14	An Offshore Construction Method Statement (CMS) will be prepared and approved by the MMO and MD-LOT prior to the commencement of construction.	The measure will be secured via a condition in the Deemed Marine Licence and Scottish Marine Licences
CoT30	An Outline Vessel Traffic Management Plan (VTMP) will form part of the Outline OEMP, which will be prepared and submitted with the application for development consent and as part of the marine licence application(s) to the Scottish Ministers. A Detailed VTMP will be developed pre-construction substantially in accordance with the Outline VTMP, and in line with the relevant legislation, guidance and industry best-practice. The Detailed VTMP will: • detail vessel routing to and from construction areas and ports to avoid areas of high risk, including liaison with the Port of Seaham and the Port of Sunderland; • include vessel standards and a code of conduct for vessel operators in compliance with international marine regulations as adopted by the Flag State, including the International Regulations for Preventing Collisions at Sea (COLREGs) (International Maritime Organisation (IMO), 1972/77) and the International Convention for the Safety of Life at Sea (SOLAS) (IMO, 1974); • detail measures to reduce disturbance to marine mammal receptors from transiting vessels, such as slow transit through the MHPGC Project and other measures as detailed in the Outline Marine Mammal Mitigation Protocol; • detail measures to reduce disturbance to red throated diver from transiting vessels, such as slow transit through the MHPGC Project and other measures as detailed in the Red Throated Diver Protocol.	The measure will be secured via a condition in the Deemed Marine Licence and Scottish Marine Licences
CoT36	An Outline Marine Mammal Mitigation Protocol (MMMP) will form part of the Outline Offshore Environmental Management Plan (OEMP), which will be prepared and submitted with the application for development consent and as part of the marine licence application(s) to the Scottish Ministers. A Detailed MMMP will be developed substantially in accordance with the Outline MMMP, which will include measures such as: • will include for the use of low-order techniques for UXO clearance; • adherence to the latest guidance issued by the JNCC, where appropriate, regarding the minimisation of injury from underwater sound generated from known project activities of, geophysical surveys (JNCC, 2017 2025a) and UXO clearance (JNCC, 2025b); • adherence to the Scottish Marine Wildlife Watching Code (NatureScot, 2023) and the Department of Environment Food and Rural Affairs (Defra) Marine and Coastal Wildlife Code (Defra, 2023); • reporting requirements for the Marine Noise Registry and marine mammal observer sightings.	The measure will be secured via a condition in the Deemed Marine Licence and Scottish Marine Licences

Commitment number	Measure adopted	How the measure will be secured
CoT37	An Outline Marine Pollution Contingency Plan (MPCP) will form part of the Outline Offshore Environmental Management Plan (OEMP), which will be prepared and submitted with the application for development consent and as part of the marine licence application(s) to the Scottish Ministers. The Outline MPCP will describe the hazards, response strategies, and step-by-step actions for handling spills, contaminant releases (including details of non-toxic, biodegradable drilling fluids), and vessel collisions during construction or operations below MHWS, and will include all essential emergency contacts and information. A Detailed MPCP will be developed substantially in accordance with the Outline MPCP.	The measure will be secured via a condition in the Deemed Marine Licence and Scottish Marine Licences
CoT38	An Outline Marine Biosecurity Plan (MBP) will form part of the Outline Offshore Environmental Management Plan (OEMP), which will be prepared and submitted with the application for development consent and as part of the marine licence application(s) to the Scottish Ministers. The Outline MBP will include (but is not limited to): • follow the latest invasive non-native species (INNS) guidance issued by the Great Britain Non-Native Species Secretariat; • ensure full compliance with the IMO Ballast Water Management Guidelines; • address biosecurity risks associated with cable installation and any accompanying cable protection measures, acknowledging that materials placed on the seabed could act as new substrates for colonising organisms. A Detailed MBP will be developed substantially in accordance with the Outline MBP.	The measure will be secured via a condition in the Deemed Marine Licence and Scottish Marine Licences
CoT44	An Offshore Decommissioning Programme will be developed and submitted to the MMO and MD-LOT prior to the commencement of any offshore construction. It will be in line with the latest relevant legislation and available guidance at the time of production, as far as reasonably practicable.	The measure will be secured via a condition in the Deemed Marine Licence and Scottish Marine Licences
CoT56	An Offshore In-Principal Monitoring Plan (OIPMP) will be prepared and submitted as part of the application for development consent and as part of the marine licence application(s) to the Scottish Ministers. The OIPMP will include for monitoring as part of the operational asset integrity surveys. A Detailed Offshore Monitoring Plan will be produced prior to O&M phases with regard to the OIPMP and will be approved in consultation with statutory advisors and regulators.	The measure will be secured via a condition in the Deemed Marine Licence and Scottish Marine Licences
CoT58	UXO hazards will be avoided where practicable and appropriate. Where avoidance is not possible, removal techniques will be considered prior to detonation. Low-order techniques, such as deflagration, will be the preferred method where practicable and appropriate. Should low order not be practicable, relocation will be considered and if no alternatives exists high order clearance may be required. If high order is required for UXO clearance works, licensing will be subject to a standalone Marine Licence application(s). The application(s) will provide details of measures to seek to minimise impacts on marine mammals where appropriate.	The measure will be secured via a condition in the Deemed Marine Licence and Scottish Marine Licences

2 Legislative Context

2.1 Overview

- 2.1.1.1 The full relevant legislation and policy context for the MHPGC Project has been detailed in **Volume 1, Chapter 5: Policy and Legislation of the PEIR**. This section identifies the relevant legislation, policy and other documentation that will inform the assessment of potential for significant risk to the protected features of MPAs, MCZs and HPMAs.

2.2 Legislation (Scotland)

- 2.2.1.1 MPAs in Scottish territorial waters (out to 12 nautical miles (nm)) are designated under Section 67 of the Marine (Scotland) Act 2010 (Scottish Parliament, 2010), which provides the legislative framework for marine planning and conservation in Scottish territorial waters and operates alongside the Marine and Coastal Access Act 2009 (MCAA) to support the wider UK MPA network. MPAs in Scottish offshore waters (i.e., beyond 12 nm) are designated under the MCAA¹.
- 2.2.1.2 The development of the Scottish MPA network has involved work between Marine Scotland, the Joint Nature Conservation Committee (JNCC), NE, Historic Environment Scotland, the Scottish Environment Protection Agency and NatureScot. The approach for identifying MPAs followed a science-based process as set out in the Scottish MPA Selection Guidelines (Marine Scotland, 2012). A total of 36 MPAs have been designated in Scotland's seas and give spatial protection to a wide range of marine wildlife, habitats and geology not previously protected (NatureScot, 2024).
- 2.2.1.3 Under Section 126 of the MCAA, and Section 83 of the Marine (Scotland) Act 2010, the Scottish Government's MD-LOT, who are responsible for granting authorisation for a licensable activity, are required to consider if any act for which consent is sought, is capable of affecting (other than insignificantly) the protected features of an MPA or any ecological or geomorphological process on which the conservation of any protected feature of the MPA is (wholly or in part) dependent.
- 2.2.1.4 To ensure MD-LOT remains compliant with the Marine (Scotland) Act 2010 and the MCAA (2009), specific consideration must be given to MPAs during the marine licence decision making process. The MPA assessment identifies the potential impacts that could arise from the MHPGC Project and identifies any MPA sites that could be affected by these activities.

2.3 Legislation (England)

- 2.3.1.1 In English territorial and offshore waters, MCZs, including HPMAs, are designated under the MCAA. MCZs provide protection for a range of important marine habitats, species and geological features, while HPMAs provide a higher level of protection over the entire marine ecosystem of the area, restricting extractive and damaging activities. In conjunction with other existing international and national designations, these sites contribute to an ecologically coherent network of marine protected areas in the North East Atlantic and North Sea.
- 2.3.1.2 MCZs in English waters have been identified through the MCZ Project which was set up in 2008 and led by the JNCC and NE (JNCC and NE, 2012). The purpose of the MCZ Project was to identify and recommend MCZs to the UK Government for designation, including proposed reference areas intended to receive a high level of protection. At the time of writing, there are a total of 91 designated sites in English waters.
- 2.3.1.3 In 2023, three HPMAs were designated under the MCAA, these are highly protected areas of the sea (including shoreline) that allow the protection and full recovery of marine ecosystems. HPMA

¹ By virtue of Section 116 (7) of the Marine and coastal Access Act 2009, a MCZ designated by the Scottish Ministers under Section 116 of the Marine and Coastal Act 2009 is to be known as a MPA and any reference to an MCZ in the Marine and Coastal Access Act is to be read also as a reference to an MPA.

protect all species and habitats and associated ecosystem processes within the site boundary, including the seabed and water column.

- 2.3.1.4 Under Section 126 of the MCAA the public authority (in this case the Secretary of State (SoS)) has a duty to consider MCZ and HPMA sites during marine licence and development consent decision making.
- 2.3.1.5 Section 126 of MCAA (2009) would apply if it is determined through the course of screening that “the activity is capable of affecting (other than insignificantly) either the protected features of an MCZ; or any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependent.”
- 2.3.1.6 To ensure the MMO and SoS remain compliant with MCAA obligations, the MCZ assessment process, including consideration of HPMA, has been integrated into the existing marine licence decision making process. Hence, there is a requirement for specific information relating to potential interactions with MCZs and HPMA within waters licenced by the MMO (i.e., English waters) to be provided.

2.4 Approaches to Consent

- 2.4.1.1 In both Scottish and English jurisdictions, consent can only be granted where the relevant Competent Authority is satisfied that there is no significant risk that the activity will hinder the achievement of the conservation objectives of the relevant MPA or MCZ. Where a significant risk cannot be discounted, the Applicant must satisfy the relevant Competent Authority that there is no other means of proceeding that would create a substantially lower risk of hindering those conservation objectives and that the benefit to the public of proceeding clearly outweighs the risk of environmental damage. In these circumstances, authorisation may be granted where the Applicant also satisfies the relevant Competent Authority that it will undertake, or make arrangements for, the undertaking of Measures of Equivalent Environmental Benefit (MEEB) in respect of the damage that the activity will or is likely to cause.
- 2.4.1.2 For HPMA consent can only be granted if the relevant Competent Authority is satisfied that there is not a risk of further damage to the protected features nor a significant risk of hindering the achievement of the conservation objectives of the North East of Farnes Deep HPMA which are to;²
- “(a) achieve full recovery of the protected feature, including its structure and functions, its qualities and the composition of its characteristic biological communities present within the North East of Farnes Deep Highly Protective Marine Area, to a natural state, and
 - (b) prevent further degradation and damage to the protected feature, subject to natural change”.

2.5 Relevant Guidance

- 2.5.1.1 Key guidance documents that have been used to inform this Report include:
- Marine Management Organisation (MMO). (2013). Marine conservation zones and marine licensing.
 - Marine Scotland’s Nature Conservation Marine Protected Areas: Draft Management Handbook (Marine Scotland, 2014)
 - MD-LOT (2025) Marine licensing and consenting: Marine Protected Area assessment.
 - Joint Nature Conservation Committee (JNCC) and Natural England. (2012). Advice to Defra on recommended Marine Conservation Zones (MCZs): the MCZ Project.
 - Planning Inspectorate (2024) ‘Advice on Cumulative Effects Assessment’
 - Defra (2023) Highly Protected Marine Areas. Policy Paper;
 - Defra (2023) Highly Protected Marine Areas: North East of Farnes Deep;

² Article 5 of the North East of Farnes Deep Highly Protected Marine Area (Marine Conservation Zone) Designation Order 2023.

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- The North East of Farnes Deep Highly Protected Marine Area (Marine Conservation Zone) Designation Order 2023;
 - JNCC (2023) North East of Farnes Deep MPA and HPMA Conservation Advice;
 - JNCC (2022) High Level Conservation Advice for Public Authorities on Highly Protected Marine Areas;
 - JNCC (2023) North East of Farnes Deep MPA: Advice on Operations.

3 Consultation and Engagement

3.1 Scoping

- 3.1.1.1 A Scoping Report for the MHPGC Project was issued to the PINS and MD-LOT in February 2025 (RPS, 2025). Following consultation with the appropriate statutory bodies, PINS (on behalf of the SoS) and MD-LOT (on behalf of the Scottish Ministers) both provided Scoping Opinions in March 2025 (PINS, 2025; MD-LOT, 2025, respectively).
- 3.1.1.2 The relevant comments and how they have been addressed within the Approach to MPA, MCZ and HPMA Assessment are summarised in **Table 3.1**.

Table 3.1: Consultation responses relevant to the MPA/MCZ/HPMA Assessments

Consultee	Relevant designated sites	Comment	How and where considered in the MPA/MCZ Screening and Stage 1 Assessment
Scotland			
MD-LOT	Firth of Forth Banks Complex NC MPA	The Scottish Ministers note that an MPA Screening Assessment has been provided in Appendix E of the MHPGC Project Scoping Report. The Scottish Ministers agree that the geodiversity features, moraines representative of the Wee Bankie key geodiversity area and shelf banks and mounds, of the Firth of Forth Banks Complex Nature Conservation MPA can be screened out from further assessment. This is a view supported by the NatureScot representation. The Scottish Ministers highlight the NatureScot representation regarding paragraph E.2.2.4 of the MPA Screening Assessment and advise that clarification must be provided on the Zone of Influence (Zol) within the Environmental Impact Assessment (EIA).	Moraines representative of the Wee Bankie key geodiversity area and shelf banks and mounds of the Firth of Forth Banks Complex NC MPA have been screened out of Stage 1 Assessment as they fall outside the screening distance for benthic ecology receptors (9km). Screening distances for each receptor group and their justifications are detailed in Section 5 .
		The Scottish Ministers agree that the benthic features of the Firth of Forth Banks Complex NC MPA should be screened in for further assessment and direct the Applicant further to the NatureScot representation with regard to the proposed assessment methodology.	The Firth of Forth Banks Complex NC MPA has been screened in for Stage 1 assessment (Montrose Bank parcel only) for offshore subtidal sands and gravels and ocean quahog aggregations only [see Section 5.2], as the other protected features lie outside the maximum Zol for benthic habitats and features. Screening distances for each receptor group and their justifications are detailed in Section 5 .
	Southern Trench NC MPA	The Scottish Ministers advise that the potential for disturbance to the minke whale qualifying feature of the Southern Trench NC MPA can be scoped out from further assessment only if low order deflagration is undertaken for any UXO clearance. If low order deflagration is not proposed to be undertaken, the Scottish Ministers advise that the Applicant should discuss this further prior to submission of the EIA.	Disturbance to the minke whale qualifying feature of the Southern Trench NCMPA has been considered in Section 5 as part of the initial screening, but is screened out from Stage 1 assessment as it lies outside the screening distance for sites with marine mammal protected features [see Section 5.1.4]. This screening distance considers the largest impact range for all marine mammal hearing groups for high order UXO clearance (30.7km). Furthermore, the Applicant is committed to the use of low order and is not seeking consent for high order UXO clearance (CoT58). See Volume 2, Annex 5.1 Underwater Sound Modelling Report, of the PEIR for further details.

Consultee	Relevant designated sites	Comment	How and where considered in the MPA/MCZ Screening and Stage 1 Assessment
	N/A	The Scottish Ministers are content that there is no connectivity to any ornithological features of Nature Conservation MPAs. This view is supported by the NatureScot representation.	No further action required.
	Turbot Bank NC MPA	The Scottish Ministers note that an MPA screening assessment has been provided in Appendix E of the Scoping Report. The Scottish Ministers are content that the sandeel feature of Turbot Bank NC MPA can be screened out from further assessment. This is a view supported by the NatureScot representation.	No further action required – see Table 5.1 and Section 5.2 .
NatureScot	Firth of Forth Banks Complex NC MPA	Table 7.3 lists the designated sites and features within the proposed study area relevant to physical processes. This includes the Firth of Forth Banks Complex NC MPA in Scottish waters as the proposed study area for physical processes overlaps with the Montrose Bank portion of the NC MPA. It is noted in the ‘relevant features for designation’ column that offshore subtidal sands and gravels are listed as an Annex I Habitat, just to highlight that this habitat is designated as a Priority Marine Feature (PMF). The Firth of Forth Banks Complex Data Confidence Assessment may be helpful in assessing potential impacts to this site (JNCC, 2014).	The Firth of Forth Banks Complex NC MPA has been screened in for Stage 1 assessment (Montrose Bank parcel only) for offshore subtidal sands and gravels and ocean quahog aggregations only [see Section 5.2]. The Firth of Forth Banks Complex Data Confidence Assessment (JNCC, 2014) has been reviewed and information regarding potential impacts and distribution of protected features within the NC MPA have been considered.
		An MPA Screening Assessment (Appendix E) has been provided within the MHPGC Project Scoping Report. Having reviewed the information provided, we agree that the geodiversity features, moraines representative of the Wee Bankie key geodiversity area and shelf banks and mounds, of the Firth of Forth Banks Complex NC MPA can be screened out from further assessment. This is due to the moraine feature being located out with the Zol of the proposal and although the shelf banks and mounds feature may overlap with the Zol by 200m, this is based on the precautionary distance applied of 15km, which is beyond the maximum of one spring tidal excursion. As noted above, and in Paragraph E.2.2.4 of the MPA Screening Assessment, the Zol of the MHPGC Project for benthic and geodiversity features has been increased to 15km on a precautionary basis from the modelled 5km to	Moraines representative of the Wee Bankie key geodiversity area and shelf banks and mounds of the Firth of Forth Banks Complex NC MPA are beyond the 9km screening distance for benthic habitats and species. Therefore, these protected features have been screened out of Stage 1 assessment [see Section 5.4]. The screening distance for benthic and geodiversity features is based on the maximum tidal excursion distance which has been updated to a 9km buffer around the MHPGC Project PEIR Red Line Boundary, based on project specific physical processes modelling described and provided in Volume 2, Annex 2.2: Model Design Validation and Results, of the PEIR . The 9km buffer was agreed with consultees via the Evidence Plan Process (EPP) and Expert Working Groups (EWGs), specially EWG2 in July 2026.

Consultee	Relevant designated sites	Comment	How and where considered in the MPA/MCZ Screening and Stage 1 Assessment
		9km (one maximum spring tidal ellipse). Notwithstanding our previous comments on the maximum spring tidal excursion distance, it is unclear why the Zol has been increased for the MPA assessment. If there is the potential that impacts could extend to 15km then this should also be the study area for benthic and physical process assessments. We would welcome clarification on this point. This advice has been provided in consultation with JNCC.	Screening distances for each receptor group and their justifications are detailed in Section 5.
		As illustrated in Figure 5.1, the MHPGC Project Scoping Boundary lies immediately adjacent to the Montrose Bank portion of the Firth of Forth Banks Complex NC MPA. This means that the benthic ecology study area overlaps with the NC MPA. We do note in Section 7.4.5 that Paragraphs 7.4.5.6 - 7.4.5.8 discuss the features of the Firth of Forth Banks Complex NC MPA that are relevant to benthic ecology but there is no mention of 'ocean quahog aggregations' although we note it is acknowledged further down in Paragraph 7.4.5.35. Table 7.16 also notes the relevant feature as 'ocean quahog' rather than 'ocean quahog aggregations'. As noted previously, the Firth of Forth Banks Complex Data Confidence Assessment may be helpful in assessing potential impacts to this site (JNCC, 2014).	The Firth of Forth NC MPA (Montrose Bank parcel only) was screened in for the Stage 1 Assessment for offshore subtidal sands and gravels and ocean quahog aggregations only [see Sections 5 and 5.3.1]. The Firth of Forth Banks Complex Data Confidence Assessment (JNCC, 2014) has also been used to inform the assessment. The Firth of Forth Banks Complex Data Confidence Assessment assesses the confidence of data informing the mapping of protected features within the boundaries of the Firth of Forth Banks Complex NC MPA.
		An MPA screening assessment (Appendix E) has been provided within the Scoping Report. Having reviewed the information provided, we agree that as the benthic features, ocean quahog aggregations and offshore subtidal sands and gravels of the Firth of Forth Banks Complex NC MPA, are located immediately adjacent to the MHPGC Project Scoping Boundary and could be impacted by the proposal e.g. increased suspended sediment concentrations (SSC) and associated deposition, they should be screened in for further assessment. No information has been provided as to the proposed assessment methodology. However, we advise that potential impacts to these benthic features should be assessed against the relevant Firth of Forth Banks Complex Nature Conservation NC MPA conservation objectives. This advice has been provided in consultation with JNCC.	The Firth of Forth NC MPA (Montrose Bank parcel) was screened in for the Stage 1 assessment for offshore subtidal sands and gravels and ocean quahog aggregations only, [see Section 5 and Section 5.3.1]. Direct effects, including temporary habitat loss/disturbance, have been screened out on the basis that the MHPGC Project PEIR Red Line Boundary does not overlap the designated site [see paragraph 5.4.1.1]. However, potential indirect effects from increased SSCs and deposition have been screened in for construction and decommissioning. In addition, the increased risk of introduction and spread of INNS has also been screened in for all phases. Disturbance/remobilisation of sediment-bound contaminants and changes in physical processes have been screened out for all phases [see Section 5.4; Table 5.2].

Consultee	Relevant designated sites	Comment	How and where considered in the MPA/MCZ Screening and Stage 1 Assessment
			The Stage 1 assessment methodology is presented in Section 6 . The assessment will consider the relevant site conservation objectives, including each of their attributes.
	Turbot Bank NC MPA	The closest site in Scottish waters designated for fish species is Turbot Bank NC MPA, located 38km to the north of the MHPGC Project, which is designated for sandeel (<i>Ammodytes marinus/A.tobianus</i>). Paragraph 7.5.5.30 states that the Turbot Bank NC MPA is not within the ZOI identified for the MHPGC Project. As noted above, underwater sound impacts to fish may extend beyond the fish and shellfish study area, our advice on potential impacts to the Turbot Bank NC MPA is included in the MPA assessment section below.	Turbot Bank NC MPA is 38km from the MHPGC Project PEIR Red Line Boundary and therefore falls outside the screening distance for fish and shellfish receptors (9km) [see Section 5]. Behavioural disturbance to fish from underwater sound (from UXO clearance and non-UXO related sources) is expected to be confined to a few thousand metres from the MHPGC Project PEIR Red Line Boundary (Popper <i>et al.</i>, 2014) [See Volume 2, Chapter 4: Fish and Shellfish Ecology], and therefore underwater sound is not anticipated to extend to the NC MPA (see Volume 2, Annex 5.1: Underwater Sound Modelling Report). It is therefore screened out and not considered in the Stage 1 assessment. Sound modelling for marine mammal and fish species is detailed in Volume 2, Annex 5.1 Underwater Sound Modelling Report, of the PEIR. Screening distances for each receptor group and their justifications are detailed in Section 5.
		The results of the preliminary screening are presented in Section E.3 and we agree that the sandeel feature of Turbot Bank NC MPA can be screened out from further assessment. Turbot Bank NC MPA is located 38km to the north of the MHPGC Project and from the proposed activities associated with the proposal it is unlikely that any potential significant impacts will affect the sandeel feature of the Turbot Bank NC MPA, including underwater sound. Our advice in relation to the ocean quahog aggregation feature of the Firth of Forth Banks Complex NC MPA has been provided in Appendix C – benthic ecology. This advice has been provided in consultation with JNCC.	Turbot Bank NC MPA falls outside the screening distance for fish and shellfish receptors (9km) and is therefore not considered in the assessment. Screening distances for each receptor group and their justifications are detailed in Section 5.
	Southern Trench NC MPA	Paragraph 7.6.5.5 states that the Southern Trench NC MPA, designated for minke whale, lies 48km from the MHPGC Project Scoping Boundary and as minke whale is only protected within the boundaries of the MPA there is not anticipated to be any requirement for inclusion of this site	The Southern Trench NC MPA has been considered in Section 5 , but is screened out from Stage 1 assessment as it lies outside the 30km screening distance for marine mammal receptors [see Section 5.1.4]. This screening distance considers the largest behavioural distance impact

Consultee	Relevant designated sites	Comment	How and where considered in the MPA/MCZ Screening and Stage 1 Assessment
		within an MPA Assessment as there is not expected to be a pathway from the impacts to the MPA. We advise that underwater sound impacts, particularly from UXO clearance, could extend some distance beyond the MHPGC Project Scoping Boundary. Our advice in relation to the Southern Trench NC MPA is provided below.	range, in relation to underwater sound, for all marine mammal hearing groups (27km), as a precautionary distance noting the Applicant is committed to low order UXO clearance and is not seeking consent for high order. See Volume 2, Annex 5.1 Underwater Sound Modelling Report, of the PEIR for further detail.
		An MPA Screening Assessment (Appendix E) has been provided within the EIA Scoping Report. The Southern Trench NC MPA is located 48km from the MHPGC Project Scoping Boundary and is designated for minke whale. As noted in Paragraph E.3.1.17, based on experience from other offshore wind farms in Scotland, the NC MPA is located outside the area within which injury to minke whales could occur from the proposal. In terms of potential for disturbance to minke whales from underwater sound, it is unlikely that there would be significant impacts from the MHPGC proposal during the cable lay and if low-order deflagration (as preferred) is undertaken for any UXO clearance then we advise potential impacts could be scoped out from further assessment.	The Southern Trench NC MPA has been considered in Section 5 , but is screened out from Stage 1 assessment as it lies outside the 30km screening distance for marine mammal receptors [see Section 5.1.4]. This screening distance considers the largest behavioural distance impact range, in relation to underwater sound, for all marine mammal hearing groups (27km), as a precautionary distance noting the Applicant is committed to low order UXO clearance and is not seeking consent for high order, See Volume 2, Annex 5.1 Underwater Sound Modelling Report, of the PEIR for further detail.
	N/A	An MPA screening assessment (Appendix E) has been provided within the Scoping Report. We have reviewed the information provided in Section E.3 and agree that there is no connectivity to any ornithology features of NC MPAs.	No further action required.
England			
NE	N/A	Cable protection – including secondary scour NE's position provided for Hornsea Project Three, Norfolk Vanguard and Norfolk Boreas in relation to Adverse Effects on Integrity from the placement of cable protection remains unchanged and therefore cable protection within MPAs should be avoided and where that is possible every effort should be made to mitigate the impacts. In order to achieve this, we advise that a cable burial risk assessment is undertaken as part of the application process informed by comprehensive geotechnical and geophysical surveys. If cable protection is required options that have the greatest success of removal with least impact to interest features	The MHPGC Project PEIR Red Line Boundary does not overlap with any MPAs or MCZs, and therefore cable protection will not be located within an MPA or MCZ boundary. An outline CSIP (including CBRA), to include the approach to activities such as sandwave levelling, will be submitted as part of the consent applications (see commitment CoT08; Table 1.1). The maximum potential ZOI for benthic habitats and species is from increased SSC and sediment deposition and reflects the 9km tidal excursion buffer, which will encapsulate potential impacts from secondary scour and indirect

Consultee	Relevant designated sites	Comment	How and where considered in the MPA/MCZ Screening and Stage 1 Assessment
		should be taken forward. A site integrity plan could then be used to determine the risk to the conservation objectives for the site and determine the requirements for any compensation measures. A detailed CBRA and Sand Wavel Levelling Plan will be necessary outside MPAs to be able to fully assess the impacts of seabed preparation and cable protection on the environment. Please note that impacts from secondary scouring around cable protection should also be factored into both marine processes and benthic assessment.	impacts beyond the MHPGC Red Line Boundary, potential effects as a result of secondary. A 'changes to physical processes' impact pathway has been screened in to the Stage 1 assessment [see Section 5.4] and this will be assessed in the Stage 1 MPA/MCZ Assessment Report where the potential effects caused by secondary scour will be assessed.
	- Farnes East MCZ; - North East of Farnes Deep MCZ/HPMA; - Coquet to St. Mary's MCZ; - Swallow Sands MCZ; - Runswick Bay MCZ; - Aln Estuary MCZ.	MCZs and HPMAs are areas that protect a range of nationally important, rare, or threatened habitats and species. You can see where MCZs are located and their special interest features on Multi-Agency Geographic Information for the Countryside (MAGIC) (Defra, 2024). Factsheets that establish the purpose of designation and conservation objectives for each of the MCZ's are available on the Government website (Defra, JNCC and NE, 2019). HPMAs are areas of the sea designated for the protection and recovery of marine ecosystems. They prohibit extractive, destructive, and depositional uses, allowing only non-damaging levels of other activities to the extent permitted by international law. The key purpose of HPMAs is marine nature recovery. Designating areas of sea with high levels of protection, will allow nature to recover to a more natural state, allowing ecosystems to thrive. HPMAs have the highest level of protection in English waters, and it is Department for Environment Food and Rural Affairs (Defra) policy that there should be no extractive, destructive or depositional activities in them. The development site is within or may impact on the following MCZs and HPMA: - Farnes East MCZ; - North East of Farnes Deep MCZ/HPMA; - Coquet to St. Mary's MCZ; - Swallow Sands MCZ; - Runswick Bay MCZ;	The Farnes East MCZ and the North East of Farnes Deep MCZ/HPMA are considered at the screening stage and are screened in to the Stage 1 assessment due to overlap with the screening distance for benthic habitats and features, fish and shellfish ecology, and/or marine mammal receptors. Coquet to St. Mary's MCZ, Swallow Sands MCZ, Runswick Bay MCZ and Aln Estuary MCZ are initially considered in Section 5, but were subsequently screened out of the assessment as they are outside of the screening distance for their respective protected features [see Section 5.1.2] At an Expert Working Group (EWG) meeting in November 2025, the screening of MCZ/HPMA sites was presented. NE's response (Appendix 4 of NE letter dated 19 December 2025) states "Natural England supports the approach to screen out sites, if evidence is provided that they will not be affected. We advise that the ZoI for the impacts resulting from the project is provided in a map format to clearly show there is no overlap with sites. We also support the proposal to continue to include sites close to the ZoI to enable precautionary assessments". A full list of EWG comments and how/where they are addressed in the MPA/MCZ assessment is provided in Table 3.2 and Figure 5.1 shows the location of the MPA/MCZs considered and the relevant Zols. Therefore, it has been possible to screen out Coquet to St. Mary's MCZ, Swallow Sands MCZ, Runswick Bay MCZ and Aln Estuary MCZ.

Consultee	Relevant designated sites	Comment	How and where considered in the MPA/MCZ Screening and Stage 1 Assessment
		Aln Estuary MCZ. The ES should consider including information on the impacts of this development on MCZ and HPMA interest features, to inform the assessment of impacts on habitats and of principle importance for this location as part of an MCZ Assessment. Further information on inshore MCZs is available in a report from the JNCC and NE (JNCC and NE, 2012). Further information on the special interest features, the conservation objectives, and relevant conservation advice packages for inshore designated sites is available on our website. Information about offshore designated sites can be found at JNCCs Site Information Centres. Please note: As there is only an area of search for the offshore export cable corridor at this stage, we are unable to provide a definitive list of sites relevant to the project, but these should be identified and fully considered within the Application documents.	This MCZ screening approach was agreed in consultation with Natural England during EWG meeting in November 2025 (see Table 3.2).
	Farnes East MCZ Coquet to St Mary's MCZ	Ocean quahog (<i>Artica islandica</i>) is a feature of the Farnes East MCZ and is missing from the MHPGC Project Scoping Report. Natural England advise this must be scoped in for assessment. In addition, the 'peat and clay exposures' feature of the Coquet to St Mary's MCZ must be scoped in for assessment.	Consideration has been given to relevant designated sites in Section 5. A detailed MPA/MCZ Stage 1 assessment Report will also be provided to support the DCO and Marine Licence application(s) to the Scottish Ministers. The approach to the Stage 1 assessment is provided in Section 6, prepared to support the PEIR. The assessment will include consideration of 'ocean quahog' feature of Farnes East MCZ. Coquet to St Mary's MCZ is 16km from the MHPGC PEIR Red Line boundary and therefore, falls outside of the maximum ZoI (9km) for the MHPGC Project based on project-specific sediment dispersion modelling undertaken (see Volume 2, Annex 1.2: Model Design Validation and Results, of the PEIR and Section 3.4.2) and has not been considered further in this assessment. This screening approach was agreed in consultation with Natural England during EWG meeting in November 2025.
	North East of Farnes Deep MCZ/HPMA	North East of Farnes Deep MCZ is designated for: subtidal coarse sediment;	North East of Farnes Deep MCZ has been considered at the Screening Stage in Sections 5 and 5.3.3.

Consultee	Relevant designated sites	Comment	How and where considered in the MPA/MCZ Screening and Stage 1 Assessment
		- subtidal sand; - subtidal mixed sediments; - subtidal mud; - ocean quahog (<i>Arctica islandica</i>). The same area has been designated as a HPMA and provides protection to 'the whole ecosystem', meaning all marine flora and fauna, all marine habitats and all geological or geomorphological interests, including all abiotic elements and all supporting ecosystem functions and processes, in the seabed, water column and the surface of the sea. The conservation objectives of North East of Farnes Deep is to: - achieve full recovery of the protected feature, including its structure and functions, its qualities and the composition of its characteristic biological communities present within the North East of Farnes Deep HPMA, to a natural state; - prevent further degradation and damage to the protected feature, subject to natural change. We advise where impacts on HPMAs are identified in the screening report, that design routes or installation methodologies are be altered to avoid the impact. Appropriate buffer areas would also need to be considered for HPMAs. Defra, JNCC and NE advised in 2021 that exclusion buffers of 4km for aggregate dredging, and 2km for offshore wind, are required during construction, O&M and decommissioning. Capital and maintenance dredging, coastal defence works and managed realignment also have a 2km buffer. NE therefore advise that in line with 2021 advice, a 2km exclusion buffer be applied around HPMA to ensure that there is minimised likelihood of indirect effects. The assessment must consider the activity-pressure-feature interaction including the impact, the location and marine processes occurring. Fish, birds and marine mammals have not been scoped into the report as protected features of this HPMA and will need	The following screening distances were considered around the MHPGC Project PEIR Red Line Boundary: - Benthic ecology: 9km; - Fish and shellfish ecology: 9km; - Marine mammals: 30km; - Marine Ornithology: 4km. For the North East of Farnes MCZ, benthic and fish and shellfish ecology was screened into the Stage 1 assessment for the following pathways: - Increased SSCs and associated deposition; - Disturbance/remobilisation of sediment bound contaminants; - Underwater sound excluding UXO; - Underwater sound from UXO clearance. For the North East of Farnes Deep HPMA the screening and approach to assessment will follow an ecosystem level approach considering the whole ecosystem including but not limited to benthic ecology, fish and shellfish ecology, ornithology and marine mammals. [See Section 7]

Consultee	Relevant designated sites	Comment	How and where considered in the MPA/MCZ Screening and Stage 1 Assessment
		to be scoped in to ensure that the potential impacts on the HPMA and its conservation objective can be assessed. Additional information about the HPMA can be found published by the JNCC (JNCC, 2023), which includes high-level conservation advice, and additional information regarding the site designation. NE advise that all habitats and species within the HPMA are assessed within an MCZ assessment.	
	Farnes East MCZ	Some features have been omitted in some parts of the MHPGC Project Scoping Report. Farnes East MCZ is designated for: • moderate energy circalittoral rock; • ocean quahog; • seapen and burrowing megafauna communities; • subtidal coarse sediments; • subtidal mixed sediments; • subtidal mud; • subtidal sand. NE advise that all features are assessed within an MCZ Assessment. Subtidal mud, sea-pen and burrowing megafauna communities and ocean quahog currently have 'restore to favourable condition' objectives, and the rest of the features have 'maintain in favourable condition' objectives. It is important to assess all potential operational impact-pathways in combination with the Site Information Centre documents on the JNCC website. NE advise that detailed modelling is carried out to estimate predicted impacts of sedimentation and deposition in this site.	The Farnes East MCZ was screened in for the Stage 1 assessment and all protected features are considered in the assessment [see Sections 5 and 5.3.2]. The pathways identified for assessment includes increased SSCs and associated deposition and disturbance/remobilisation of sediment bound contaminants, for all phases of the development. Project-specific sediment dispersion modelling has been undertaken (see Volume 2, Annex 1.2: Model Design Validation and Results, of the PEIR) and this has been used to inform the 9km ZoI for the MHPGC Project. This modelling will be used to inform the Stage 1 assessment.
	Coquet to St. Mary's MCZ	Some features have been omitted in some parts of the MHPGC Project Scoping Report. Coquet to St. Mary's MCZ is designated for: • High energy infralittoral rock; • High energy intertidal rock;	Coquet to St. Mary's MCZ is 16km from the MHPGC PEIR Red Line boundary, it is initially considered in Section 5, but was subsequently screened out as it lies outside the screening distance for benthic habitats and species receptors (9km), based on MHPGC Project-specific sediment distribution modelling that has been undertaken (see Volume 2, Annex

Consultee	Relevant designated sites	Comment	How and where considered in the MPA/MCZ Screening and Stage 1 Assessment
		• Intertidal coarse sediment; • Intertidal mixed sediments; • Intertidal mud; • Intertidal sand and muddy sand; • Intertidal underboulder communities; • Low energy intertidal rock; • Moderate energy circalittoral rock; • Moderate energy infralittoral rock; • Peat and clay exposures; • Subtidal coarse sediment; • Subtidal mixed sediments; • Subtidal mud; • Subtidal sand. • High Energy Intertidal Rock is a feature of the Coquet to St Mary's MCZ which is missing from this table (Table E.3). NE advise this must be scoped in for assessment.	2.2: Model Design Validation and Results, of the PEIR) and has therefore been screened out of the Stage 1 assessment. At the EWG meeting in November 2025 the screening of MCZ/HPMA sites was presented. NE's response (Appendix 4 of NE letter dated 19 December 2025) states "Natural England supports the approach to screen out sites, if evidence is provided that they will not be affected. We advise that the Zol for the impacts resulting from the project is provided in a map format to clearly show there is no overlap with sites. We also support the proposal to continue to include sites close to the Zol to enable precautionary assessments". A full list of EWG comments and how/where they are addressed is provided in Table 3.2.
	Swallow Sands MCZ	Swallow Sand MCZ is designated for subtidal coarse sediment, subtidal sand, and North Sea glacial tunnel valleys. All three of these features are in favourable condition. As Swallow Sand MCZ is located approximately 20km away from proposed operations, we do not currently anticipate that any associated activity will have an impact on this MPA. However, it remains important to assess all potential O&M impact pathways in combination with the Site Information Centre documents on the JNCC website.	Swallow Sands MCZ is initially considered in Section 5, but was subsequently screened out as it lies outside the screening distance for benthic habitats and species receptors (9km), based on project-specific sediment distribution modelling that has been undertaken (see Volume 2, Annex 2.2: Model Design Validation and Results, of the PEIR) and has therefore been screened out of the assessment. At the EWG meeting in November 2025 the screening of MCZ/HPMA sites was presented. NE's response (Appendix 4 of NE letter dated 19 December 2025) states "Natural England supports the approach to screen out sites, if evidence is provided that they will not be affected. We advise that the Zol for the impacts resulting from the project is provided in a map format to clearly show there is no overlap with sites. We also support the proposal to continue to include sites close to the Zol to enable precautionary assessments". A full list of EWG comments and how/where they are addressed is provided in Table 3.2.

Consultee	Relevant designated sites	Comment	How and where considered in the MPA/MCZ Screening and Stage 1 Assessment
			Therefore, it has been possible to screen out Swallow Sands MCZ.
	N/A	A precautionary approach has been adopted for MPA Screening and this Zol has been increased to 15km. There has been evidence to show that this Zol could extend to 17km or possibly further dependent on local conditions. The use of spring tidal excursion ellipses is helpful for estimating the potential extent of direct changes to the tidal regime as well as the zone of greatest influence for sediment plumes. 10 to 15km is within the range of values used for a number of offshore wind farm projects (although larger values e.g. Five Estuaries have been used (14- to 17km)). NE advise the applicant uses site-specific spring tidal excursion ellipses for this development. For some impacts other than sediment disturbance, determining the Zol will also need to draw upon information on, for example, coastal sediment cells/pathways. For example, longshore drift being interrupted by the presence of cable protection measures in the nearshore. Such changes could also affect receptors further afield than a tidal ellipse.	In the MHPGC Project Scoping Report, the Benthic habitats and species Zol was defined as the MHPGC Project Scoping Boundary plus a buffer extending approximately 5km to 9km. Physical processes modelling, provided in Volume 2, Annex 1.2: Model Design Validation and Results, of the PEIR, has now been undertaken for the MHPGC Project PEIR Red Line Boundary, which defines the maximum spring tidal excursion distance, and hence the Benthic habitats and species Zol is 9km around the MHPGC Project PEIR Red Line Boundary. This is described in further detail in Section 5.1. The 9km buffer was agreed with consultees during EWG2 and has therefore been adopted as the Benthic habitats and species Zol for the PEIR The 9km tidal excursion buffer has informed the Benthic Ecology Study Area and the Fish and Shellfish Study Area. Screening distances for each receptor group and their justifications are detailed in Section 5.1
	Farnes East MCZ; Coquet to St. Mary's MCZ.	Ocean quahog (<i>Artica islandica</i>) is a feature of the Farnes East MCZ and is missing from this table. NE advise this must be scoped in for assessment. Peat and clay exposures are a feature of the Coquet to St. Mary's MCZ. NE advise this must be scoped in for assessment. The 'high energy intertidal rock' feature of Coquet to St Mary's MCZ has been omitted in the MHPGC Project Scoping Report. Natural England advise this must be scoped in for assessment.	Consideration has been given to relevant designated sites in Section 5 of this report including the 'ocean quahog' feature of Farnes East MCZ. Coquet to St. Mary's MCZ is 16km from the MHPGC Project PEIR Red Line boundary and therefore, falls outside of the screening distance of 9km based on MHPGC Project specific sediment dispersion modelling and determination of the maximum tidal excursion distance (see Volume 2, Annex 2.2: Model Design Validation and Results, of the PEIR) and has not been considered further in this assessment. This screening approach was agreed in consultation with NE during the EWG meeting in November 2025. A full list of EWG comments and how/where they are addressed in the MPA/MCZ assessment is provided in Table 3.2. Screening distances for each receptor group and their justifications are detailed in Section 5.

Consultee	Relevant designated sites	Comment	How and where considered in the MPA/MCZ Screening and Stage 1 Assessment
	N/A	Environmental data NE is required to make available information it holds where requested to do so. National datasets held by NE. Detailed information on the natural environment is available at MAGIC (Defra, 2024).	These data sources are considered as part of the screening [see Section 5] and will be considered in the Stage 1 assessment.
		- The scoping boundary currently overlaps with, and is in the vicinity of, several designated sites as listed in Annex A of this letter The direct and indirect effects of the development on these sites should be fully assessed in the EIA and associated Habitats Regulations Assessment and MCZ Assessment. If adverse effects on site integrity or hinderance of conservation objectives are expected, then without prejudice compensation is likely to be required. Please see Annex A (Section 3.3) for more information on the Habitats Regulations. The Applicant should ensure to check that features and references made to the inshore designated sites are identified and listed correctly within the ES. Information on the designated sites can be accessed from NE's designated sites system: Site Search, conservation advice for each of the sites is linked from this site which must be used. Information about offshore designated sites can be found at JNCCs Site Information Centres. NE's overarching advice when selecting a cable route, is to use the avoid, reduce, mitigate hierarchy, in order to reduce environmental impacts. The proposed cable route scoping boundary currently passes through several terrestrial Sites of Scientific Interest, and our preference would be, in the first option, to avoid these protected areas entirely when siting the cable, temporary works and the Onshore Land Sub-Station.	Indirect and direct effects on MPA and MCZ designated sites of relevance to the MHPGC Project are considered in Section 5.4 of this Report. The MHPGC Project cable route has also been sensitively routed to avoid direct overlap of the PEIR boundary with any protected sites (see Volume 1, Chapter 3: Site Selection & Consideration of Alternatives, of the PEIR).
PINS	Farnes East MCZ ID3.4.11	Ocean quahog is a protected feature of Farnes East MCZ. The ES should include an assessment of these protected features.	The Farnes East MCZ was screened in for the Stage 1 assessment and all protected features, including ocean quahog, will be considered in the assessment in Sections 5.2 and 5.3.2 .

Consultee	Relevant designated sites	Comment	How and where considered in the MPA/MCZ Screening and Stage 1 Assessment
	Coquet to St. Mary's MCZ ID3.4.11	Additionally, peat and clay exposures are a protected feature of the Coquet to St. Mary's MCZ. The ES should include an assessment of these protected features.	Coquet to St Mary's MCZ is 16km from the MHPGC PEIR Red Line Boundary and therefore, falls outside of the maximum ZoI (9km) for the MHPGC Project based on project-specific sediment dispersion modelling undertaken (see Volume 2, Annex 1.2: Model Design Validation and Results, of the PEIR) and therefore has not been considered further in this assessment. This approach to scoping of MCZ sites has been agreed during EWG consultation with Natural England. Consideration has been given to relevant designated sites in Section 5 , and detailed MPA/MCZ and HPMA assessments will be provided to support the DCO and Marine Licence application(s) to the Scottish Ministers. Screening distances for each receptor group and their justifications are detailed in Section 5

3.2 Evidence Plan Consultation

- 3.2.1.1 EWG meetings in relation to Physical Processes, Fish & Shellfish, Benthic Ecology, and Marine Mammals were held in November 2025 with stakeholders to discuss points, including the MPA/MCZ assessment [see **Table 3.2**]. NatureScot were unable to attend the EWG meetings, although provided written comments on EWG materials. This included information on which sites should be considered for each phase of the MHPGC Project.
- 3.2.1.2 A second set of EWG meetings were held in July 2026 to present updates to the Physical Processes, Fish & Shellfish, Benthic Ecology and Marine Mammal assessments and discuss the preliminary findings of the PEIR. The outcomes of the meeting have been considered in the preparation of this PEIR, where relevant.

Table 3.2 EWG comments of relevance to the MPA/MCZ

Date	Consultee and response type	Comment	How and where considered in the PEIR
November 2025	EWG meeting with stakeholders: - MMO; - Centre for Environment, Fisheries and Aquaculture Science (Cefas); - NE; - Environment Agency; - Yorkshire Wildlife Trust.	The approach to the assessment was discussed with stakeholders, including the use of MHPGC Project specific data and habitat mapping. The EWG meeting aimed to address key scoping opinion comments provided. For example, the MCZs and MPAs to be included in the assessment were discussed in relation to the MHPGC Project Zol [see Section 5]. Following this meeting, stakeholders provided responses on points raised for discussion, the comments of which relate to the MPA/MCZ assessment are detailed in the following row. EWG members agree that the Applicant's approach to screening sites within the MCZ/MPA assessment based on the maximum Zol is sufficient and precautionary. The MMO and NE responded with no further specific comments following the EWG. The Environment Agency (EA) responded, noting that the approach is broadly suitable, but as the EA have not seen the underlying reports they can only comment on the statements in the slides.	The approach for choosing the Screening Study Area and subsequent Zol for each receptor group are provided in Section 5 .
November 2025	NatureScot advice on EWG materials	We are unsure if Marine Scotland's Nature Conservation Marine Protected Areas: Draft Management Handbook (2014) is still in use. Therefore, we advise you contact the relevant individual. The MPA assessment must include full consideration of the conservation objectives for the site being assessed, including each of the attributes. JNCC manage the Firth of Forth Banks Complex NC MPA so we will liaise with JNCC to obtain their advice during the Application consultation stage.	Marine Scotland's Nature Conservation Marine Protected Areas: Draft Management Handbook (2014) is archived but still available and has been used. NatureScot's 'Development management and Nature Conservation Marine Protected Areas' Guidance follows the assessment process as set out in the MPA Management Handbook and this has been reviewed. Full consideration of conservation objectives is

Date	Consultee and response type	Comment	How and where considered in the PEIR
			provided in Section 5.3 will be included in the Stage 1 assessment.
August 2026	North Sea Wildlife Trust advice on EWG2 materials	The North Sea Wildlife Trusts agree that the proposed Valued Ecological Receptors (VERs) are appropriate and sufficiently comprehensive to inform the PEIR, including protected habitat features and species/communities of conservation importance. We expect all relevant protected features within the Zone of Influence, including those associated with the North East of Farnes Deep HPMA and Farnes East MCZ, to be appropriately considered within the assessment.	North Sea Wildlife Trust's comment is noted. All relevant protected features will be assessed within the North East of Farnes Deep HPMA and Farnes East MCZ assessments, which will be submitted with the application for development consent and Marine Licence application(s), with the approach provided in Section 7 of this document.
August 2026	North Sea Wildlife Trust advice on EWG2 materials	Secondly, we consider that further specific mitigation should be considered in relation to sediment resuspension and deposition in the vicinity of the North East of Farnes Deep HPMA and Farnes East MCZ. Both sites are in close proximity to the Project and are therefore potentially sensitive to indirect effects associated with suspended sediment and deposition. The preliminary sediment dispersion modelling presented at EWG2 is encouraging in indicating that sediment plumes are generally expected to be transported along the cable route rather than substantially towards the protected sites. Nevertheless, the EWG2 discussion confirmed that jetting represents the Maximum Design Scenario for sediment resuspension. We therefore recommend that the Applicant commits, where technically feasible, to using ploughing rather than water-jetting techniques for cable installation through the section of route adjacent to the North East of Farnes Deep HPMA and Farnes East MCZ. This would provide a clear and proportionate means of reducing the risk of indirect smothering effects to protected benthic features.	The sediment dispersion assessment has considered a precautionary maximum design scenario for sediment disturbance and demonstrates that SSC and deposition effects are spatially limited and are not predicted to result in significant effects on the Farnes East MCZ or the North East of Farnes Deep HPMA. Nevertheless, the impact pathway for these sites has been screened in for assessment (see Table 5.2). The Applicant has set out the approach in Section 7 of this document. Any additional work undertaken to support the DCO application will be considered as part of the ongoing assessment process, and the need for any additional mitigation measures will be evaluated at that stage. Installation methods will be selected during detailed design having regard to seabed conditions, burial requirements, cable protection requirements and environmental considerations. Accordingly, the Applicant does not consider a commitment to a specific installation technique to be necessary to avoid or reduce significant effects.

Date	Consultee and response type	Comment	How and where considered in the PEIR
			Nevertheless, environmental effects will form part of the installation method selection process and lower impact techniques will be used where technically feasible and appropriate (CoT08).
January 2026	Written response from NatureScot on EWG meeting minutes	Following the EWG Meeting, NatureScot provided additional advice on key considerations: - The Southern Trench NC MPA designated for minke whale should only be scoped out if there is no potential for direct noise impacts overlapping the MPA area. - Low noise alternatives to high order detonations should be prioritised in UXO clearance. - If high-order clearance is necessary, NatureScot would need to be consulted if there is potential for an impact on the Berwickshire and Northumberland SAC designated for the grey seal. This will be better understood after assessment scenario 2 is completed. - However, we do accept the use of the 5km EDR for geophysical survey activity, as this is highly precautionary. - For UXOs, we advise the use of TTS (temporary threshold shift) as a proxy for disturbance. This is because the noise is so short-term that displacement or other behavioural responses are unlikely. TTS is therefore the most likely worst case (sub-injury) consequence of this activity. - TTS should not be used as a proxy for disturbance for other noise sources (piling, geophysical survey, vessel noise, etc). - For UXO clearance, a mitigation zone must be defined. This is the full extent within which auditory injury could occur or a 1km radius, whichever is larger. Ensuring the full extent of the mitigation zone is clear of marine mammals before explosive use may require multiple mitigation techniques to be applied. The full extent of the mitigation zone will be agreed during the application process. If the mitigation zone extends to distances which can't be effectively mitigated, a European Protected Species (EPS) licence for injury may be required.	The Southern Trench NC MPA is considered in Section 5 of this Report. The Southern Trench NC MPA is 58.8km from the MHPGC Project. This is outside the established Zol for Marine Mammals, which is 30km, so there is no potential for direct noise impacts overlapping the NC MPA. The MHPGC Project includes a commitment to seek to minimise impact from UXO clearance through the hierarchy set out in CoT58, which identifies low order techniques, such as deflagration, as the preferred method where practicable and appropriate [see Vol 2, Chapter 5: Marine Mammals of the PEIR], with precautionary information on high order (detonation) UXO clearance presented for information only. Potential impacts on Berwickshire and North Northumberland Coast SAC are considered within the MHPGC Project HRA Screening Report, of the PEIR, MHPGC Project RIAA, of the PEIR. The marine mammal assessment [see Vol 2, Chapter 5: Marine Mammals of the PEIR] considers the updated JNCC EDRs (JNCC, 2025b) where appropriate and presents TTS impact ranges as a proxy for disturbance from UXO clearance, but not for other

Date	Consultee and response type	Comment	How and where considered in the PEIR
			sources where behavioural disturbance thresholds are available. MHPGC Project commitments of relevance to marine mammals are described in Section 5.7 of Vol 2, Chapter 5: Marine Mammals of the PEIR, including the preparation of an Outline MMMP (CoT36), which will be submitted as part of the DCO application and Marine Licence application(s) to the Scottish Ministers, with details of mitigation zones have been considered as part of the impact assessment. The full list of projects commitments is provided in Volume 1, Annex 4.1: Draft Commitments Register, of the PEIR. Further consultation responses to this NatureScot feedback are addressed in Volume 2, Chapter 5: Marine Mammals of the PEIR.
July 2026	NatureScot written advice on EWG materials	NatureScot agree with the proposed VERs, the Fish and Shellfish Ecology Study Area (which they understand includes the 9km spring tidal excursion range).	NatureScot's agreement with the proposed VERs and the 9km Fish and Shellfish Ecology Study Area is noted.

3.3 Other Consultation and Engagement

- 3.3.1.1 Through Natural England's Discretionary Advice Service (DAS) the Applicant called a meeting with Natural England on 24th July 2026, to discuss the proposed ecosystem level approach for assessing potential effects on the North East of Farnes Deep HPMA in advance of the PEIR submission and in absence of any statutory guidance on assessment approach.
- 3.3.1.2 Natural England welcomed the proposed ecosystem level assessment framework, which is to consider physical processes, habitats and species through to higher trophic levels, and agreed that this represented a logical approach for assessing potential impacts on ecosystem recovery and functioning. Natural England advised that, given the conservation objectives of HPMAs, robust evidence would be required to demonstrate that the MHPGC Project would not hinder ecosystem recovery or functioning.
- 3.3.1.3 Natural England recommended that the assessment draw upon existing evidence sources, including project-specific survey data, designation documentation and site verification datasets (see **Section 7.3**), and highlighted the importance of understanding natural variability, sediment dynamics and geomorphological processes when characterising baseline conditions. Particular consideration was requested for sediment transport pathways, deposition, cable protection, habitat recovery

timescales, underwater noise, light attenuation and potential effects on sensitive species, including migratory fish and species utilising the HPMA as a transit corridor. Quantitative assessment of recovery periods and depositional effects, supported by conservative modelling assumptions, was also advised.

4 MPA/MCZ Assessment Methodology

4.1 Overview

- 4.1.1.1 Under Section 126 of the MCAA, MD-LOT and the SoS have a duty to consider MCZs during marine licence decision making.
- 4.1.1.2 Guidance published by the MMO (2013) describes how MCZ assessments should be undertaken. This guidance will be followed by the Applicant when undertaking the required assessments.
- 4.1.1.3 Guidance from MD-LOT in relation to the assessment of Scottish MPAs during the marine licence decision making process, (Scottish Government, 2025) and Marine Scotland's Planning Scotland's Seas: Marine Protected Areas Draft Management Handbook (Marine Scotland, 2014) will be followed. Although this handbook has been archived and there are no further published updated versions, it follows the same process and approach as the MMO guidance. This approach ensures adequate information is provided to enable MD-LOT to appropriately consider MPAs, thereby remaining compliant with the Marine (Scotland) Act 2010 and MCAA.
- 4.1.1.4 As the MPA/MCZ assessment guidance documents follow a similar staged assessment, as detailed in **Section 4.2** and **Section 4.3**, the assessments will be contained within the one MPA/MCZ Assessment Report submitted with the development consent and marine licence applications. This Report details the Screening process for those protected sites and provides an outline methodology for the Stage 1 assessment.

4.2 MPA Assessment Methodology

- 4.2.1.1 Marine Scotland's Planning Scotland's Seas: Marine Protected Areas Draft Management Handbook (Marine Scotland, 2014) recommends a staged approach to the MPA assessment, although this remains archived and replacement guidance has not been issued, it is still considered relevant to the completion of an MPA assessment. The MPA assessment starts with a preliminary screening process which should identify whether the impacts associated with a project can reasonably be predicted to be 'capable of affecting (other than insignificantly)' the protected features of an MPA. If the initial MPA screening identifies an MPA with protected features which may be affected other than insignificantly, the relevant licensable activities, sites or impacts are screened into the MPA assessment process, these are then considered within the Stage 1 or main assessment. Which considers whether the proposed activity would or might significantly hinder, or there is or may be a significant risk of the act hindering, the achievement of the conservation objectives. This assessment process is shown in **Figure 4.1**.
 - **Screening:** This initial screening stage should focus on what can reasonably be predicted as a consequence of the proposal and whether it is 'capable of affecting (other than insignificantly)' a protected feature of an MPA. The screening should consider aspects such as the scale, timing and duration of proposed activities/developments. These considerations should include proposals for developments or activities out with the boundary of an MPA. The Guidance states;
 - 'Firstly, consideration of 'capable of affecting' should result in removing from further consideration all proposals / functions which are not in any way connected to the protected feature(s). A capability that is both remote (in terms of likelihood of occurrence) and hypothetical should not be the basis of a conclusion that further assessment is required. This can be determined by considering whether the activity will exert pressures which the protected feature(s) are sensitive to'.
 - Secondly, if the conclusion is that there is 'capability of affecting', the focus should then be on considering whether the proposed development or activity will affect the protected features of a MPA, other than insignificantly. Consideration of the degree of pressure that could be exerted by the activity on a spatial basis should help to establish what level of effect might occur.
 - In circumstances where the conclusion is that that the act or function is capable of affecting (other than insignificantly) the protected features of a MPA then the main assessment must be carried out considering the conservation objectives'.

- **Stage 1 assessment:** The main assessment stage focuses on determining whether the exercise of a function would or might significantly hinder (s82 Marine (Scotland) Act or s125 MCAA), or there is or may be a significant risk of the act hindering (s83 Marine (Scotland) Act or s126 MCAA), the achievement of the conservation objectives.
 - 'Scale, timing and duration of the proposed activities or developments should all be considered. However, whilst the initial screening focuses on the protected features, this main assessment focuses on the potential impact on the achievement the conservation objectives of the protected features. Consideration of cumulative effects with other activities and functions should also be undertaken in line with EIA requirements.
 - The assessment should build on the initial screening assessment that considers the pressures associated with the activity and the sensitivity of the protected features, and information on the likely spatial overlap. To determine whether there is a 'significant risk of hindering' the achievement of the conservation objectives of the protected features of a MPA aspects such as the intensity, frequency, and duration of any activities associated with the function or act should be considered'.
- **Stage 2 assessment:** Should it be determined that there is significant risk that the achievement of the conservation objectives will be hindered, the applicant must satisfy the public authority that:
 - i. there are no other means of proceeding that would create a substantially lower risk;
 - ii. the benefit to the public clearly outweighs the risk of damage to the environment; and
 - iii. measures will be undertaken of equivalent environmental benefit to the damage which will or is likely to occur

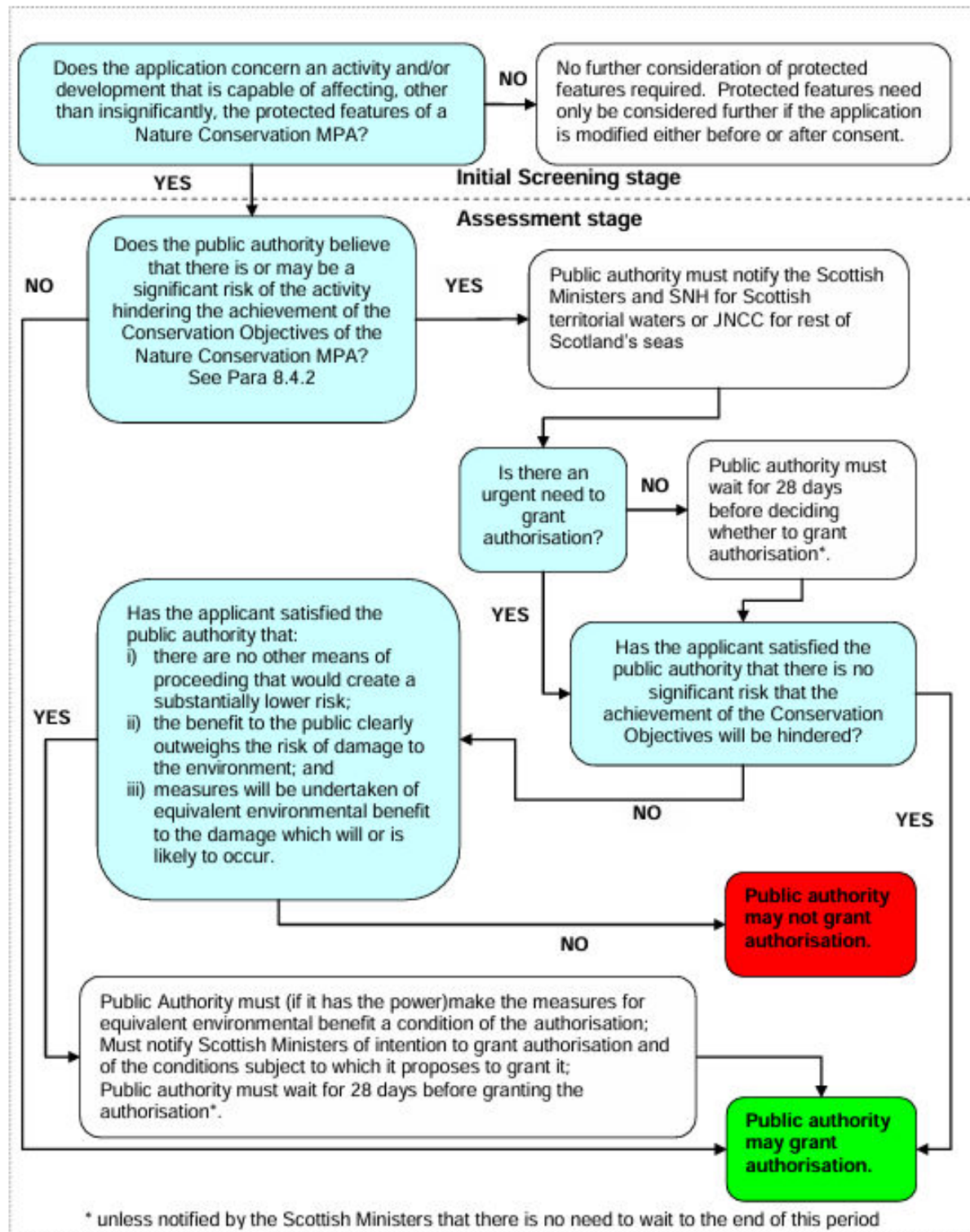


Figure 4.1: Summary of Staged Assessment of MPAs (Marine Scotland, 2014)

4.3 MCZ Methodology

4.3.1.1 The MMO (2013) guidance recommends a staged approach to assessment, involving three sequential stages: Screening, Stage 1 assessment, and Stage 2 assessment [see **Figure 4.2** from MMO (2013)]. Full details of these stages have been provided below:

- **Screening:** Determines whether the licensable activity is taking place within or near an area being put forward or already designated as an MCZ and whether the activity is capable of affecting (other than insignificantly) the protected features of an MCZ or any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependant. If the answer is yes, then proceed to Stage 1.
- **Stage 1 assessment:** Is the licensing authority satisfied that there is no significant risk of the activity hindering the conservation objectives stated for the MCZ and can the authority exercise its functions to further the conservation objectives of the site. If the answer is no to either of these questions, then the authority must consider whether there are other means of proceeding with the activity which would create a substantially lower risk of hindering the conservation objectives. If the answer is still no, then proceed to Stage 2.
- **Stage 2 assessment:** This stage looks at whether the benefit to the public of proceeding with the activity clearly outweighs the risk of damage to the environment and seeks to satisfy the authority that the applicant can make arrangements to undertake MEEB to the damage which the activity will or is likely to have in or on the MCZ.

4.3.1.2 For Screening, the MMO (2013) guidance indicates that following the identification of MCZs to be considered, a risk-based approach should be used when determining the proximity of an activity to with respect to the MCZs. This will include applying an appropriate buffer zone to the MCZ features under consideration, as well as consideration of risks which lie in activities further away from features. In determining 'insignificance', the likelihood of an activity causing an effect, the magnitude of the effect should it occur, and the potential risk any such effect may cause on either the protected features of an MCZ or any ecological or geomorphological process on which the conservation objectives of any MCZ feature is (wholly or in part), dependent' will be considered.

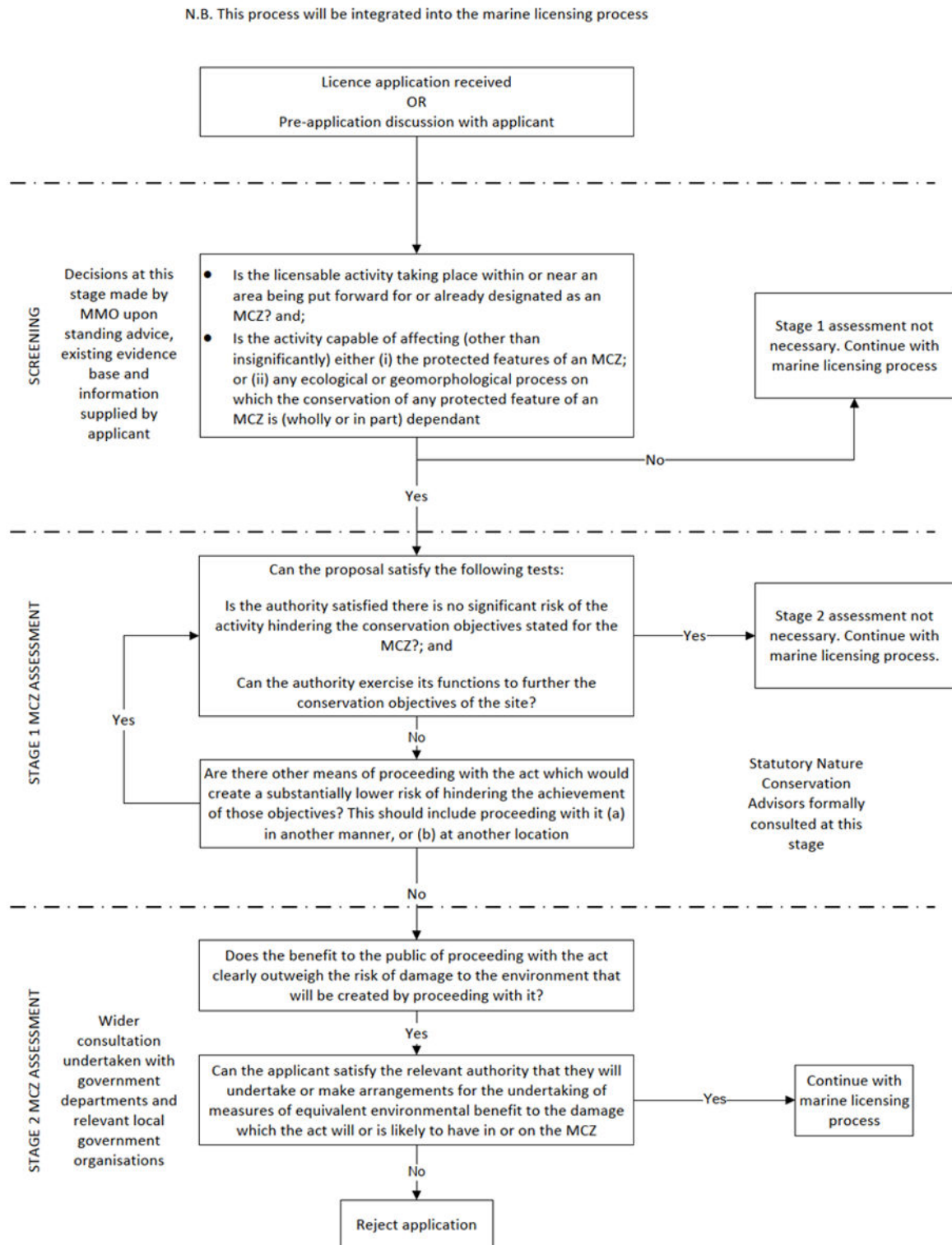


Figure 4.2: Summary of the MCZ assessment process used by the MMO in marine licence decision making (MMO, 2013).

5 MPA/MCZ Screening

5.1 Receptor Screening Distances

- 5.1.1.1 To determine whether Section 126 of MCAA or Section 83 of Marine (Scotland) Act 2010 applies, it is necessary to consider the geographical proximity of the MHPGC Project PEIR Red Line Boundary to the MPA/MCZ, and the potential for proposed activities to affect the protected features of the MPA/MCZ or the ecological/geomorphological processes upon which protected features are reliant.
- 5.1.1.2 For the purposes of the screening, the following four receptor groups are considered:
- Benthic habitats and species;
 - Fish and shellfish;
 - Marine mammals;
 - Marine ornithology.
- 5.1.1.3 These receptor groups reflect the principal ecological components represented within MPA and MCZ sites in the North Sea, cover all protected features of the relevant MPAs/MCZs which may be impacted by the MHPGC Project and provide an appropriate basis for identifying sites with the potential to interact with the MHPGC Project. Screening on this basis allows the assessment to focus on designated sites where a potential impact of activities from the MHPGC Project may occur.
- 5.1.1.4 The Screening Study Area adopts the precautionary Marine Mammal Regional Study Area to provide a broad geographical area for the initial identification of potentially relevant MPAs and MCZs, reflecting the extensive ranges and mobility of marine mammals. It extends across the central and northern North Sea to the European coastline. The justification for the Marine Mammal Regional Study Area is provided in full in **Volume 2, Chapter 5: Marine Mammals, of the PEIR**.
- 5.1.1.5 This broad Marine Mammal Regional Study Area provides the geographical context for identifying potentially relevant sites across all receptor topics and does not represent the predicted extent of MHPGC Project effects. **Figure 5.1** shows all MPAs and MCZs (and HPMA) identified within this Screening Study Area. **Table 5.1** lists sites with protected features potentially connected to the MHPGC Project, taking account of receptor specific Zols outlined in the subsections below to begin identifying source-pathway receptor linkages. It therefore does not reproduce the full list of sites shown on **Figure 5.1**, where no such connectivity is identified.
- 5.1.1.6 For the sites taken forward from this initial screening, **Section 5.4** and **Table 5.2** provide more detailed consideration of the relevant activities and potential effects to determine whether the MHPGC Project is capable of affecting (other than insignificantly) the protected features of an MPA/MCZ or any ecological or geomorphological process on which the conservation objectives of those features wholly or partially depend.

5.1.2 Benthic Habitats and Species

- 5.1.2.1 The maximum potential Zol for benthic habitats and species is from increased SSC and sediment deposition and reflects the 9km tidal excursion buffer. The tidal excursion buffer is defined as the offshore extent, seaward of MHWS, of the MHPGC Project PEIR Red Line Boundary plus a buffer extending 9km [see **Figure 5.1**].
- 5.1.2.2 The 9km buffer equates to one maximum tidal ellipse over a large spring tide around the offshore extent of the MHPGC Project PEIR Red Line Boundary, determined through physical processes modelling described and provided in in **Volume 2, Annex 2.2: Model Design Validation and Results, of the PEIR**. This buffer has been informed through physical processes modelling of local hydrodynamic conditions surrounding the MHPGC Project and is designed to incorporate the extent of likely potential impacts of the MHPGC Project, providing a precautionary geographic context and encompassing the relevant functional habitats and potential maximum dispersion of suspended particles in one tidal cycle.
- 5.1.2.3 Beyond this extent, any effects from the MHPGC Project on MPA/MCZ protected features would not be capable of affecting (other than insignificantly) the protected feature of an MPA/MCZ.

- 5.1.2.4 Potential impacts associated with benthic ecology and the MHPGC Project are assessed within **Volume 2, Chapter 3: Benthic Subtidal and Intertidal Ecology, of the PEIR**.

5.1.3 Fish and Shellfish

- 5.1.3.1 Potential impacts associated with fish and shellfish ecology and the MHPGC Project have been assessed within **Volume 2, Chapter 4: Fish and Shellfish Ecology, of the PEIR**, and an assessment of herring spawning and sandeel supporting habitat in relation to the MHPGC Project is detailed in **Volume 2, Annex 4.1: Herring and Sandeel Assessment, of the PEIR**.
- 5.1.3.2 As with benthic habitats and species, the maximum Zol for fish and shellfish receptors is also from increased SSC and sediment deposition and reflects the 9km tidal excursion buffer [see **Figure 5.1**]. This buffer encompasses the maximum predicted extent of all relevant direct and indirect impact pathways for fish and shellfish receptors associated with the MHPGC Project. Potential effects associated with other pathways, such as underwater noise, are predicted to occur over smaller spatial extents and are therefore captured within this precautionary screening range. Beyond this extent, any effects from the MHPGC Project on MPA/MCZ protected features would be minimal.

5.1.4 Marine Mammals

- 5.1.4.1 Marine mammals have an extensive range and mobility over the central and northern North Sea geographic region to the European coastline.
- 5.1.4.2 Potential impact ranges from high order UXO charges are provided for information in **Volume 2, Annex 5.1 Underwater Sound Modelling Report, of the PEIR**. At a charge size of 697kg, the largest potential impact range is 47km for very high frequency cetaceans such as harbour porpoise (*Phocoena phocoena*). However, low order (deflagration) detonation is the preferred method for UXO clearance and the only method to be included in the consent applications, and the potential impact range from this UXO clearance method will be significantly lower than for high order detonation. If high order UXO clearance is required a separate Marine Licence will be submitted to MMO or MD-Lot.
- 5.1.4.3 Behavioural disturbance impact ranges for all marine mammal hearing groups are detailed in **Volume 2, Annex 5.1 Underwater Sound Modelling Report, of the PEIR**. The greatest impact ranges were for cable laying vessel noise, occurring up to distances of 27km.
- 5.1.4.4 Therefore, on a precautionary basis, a 30km Zol has been used to screen for sites with marine mammal features (the Marine Mammal Study Area on **Figure 5.1**), accounting for both low order UXO clearance and vessel movement disturbance. Beyond this extent, any effects from the MHPGC Project on MPA/MCZ protected marine mammal features would not be capable of affecting (other than insignificantly) the protected features of the MPA/MCZ.
- 5.1.4.5 Potential impacts associated with marine mammals in the MHPGC Project have been assessed within **Volume 2, Chapter 4: Marine Mammals, of the PEIR**, and the assessment was supported by modelling of underwater sound from the MHPGC Project which has been detailed in **Volume 2, Annex 5.1 Underwater Sound Modelling Report, of the PEIR**.

5.1.5 Marine Ornithology

- 5.1.5.1 The marine ornithology Zol is defined as a 4km buffer extending from the offshore extent of the MHPGC Project PEIR Red Line Boundary (Offshore Ornithology Study Area on **Figure 5.1**) The 4km buffer zone considers potential impact to sensitive bird species from noise and visual disturbance, as well as through impacts on prey availability, as detailed in **Volume 2, Chapter 6: Marine Ornithology, of the PEIR**. There is no guidance or literature to support a specific distance for the consideration of marine ornithological receptors for offshore export cable impact assessments. However, using professional judgement and in line with relevant studies (SNCBs, 2022; Goodship and Furness 2022; Fliessbach *et al.*, 2019) related to displacement distances from vessel presence, a 4km buffer zone was chosen as a suitable marine ornithology Zol. Of note, whilst a 9km tidal excursion buffer is used to assess impacts on fish and shellfish receptors, a 4km Zol is considered appropriate and proportionate for the ornithological assessment, based on the fact that the area

within which ecologically meaningful changes to prey resources for birds can occur is substantially smaller area than the maximum dispersion of suspended sediment particles.

- 5.1.5.2 Seabird species that are protected features of MPA/MCZ sites are considered in screening where their species-specific foraging ranges overlap the MHPGC Project PEIR Red Line Boundary or its surrounding 4 km Zol buffer. The 4 km buffer represents the potential extent of Project effects, while the foraging range is used to identify whether birds associated with a designated site could occur within that area. Breeding-season foraging ranges are taken from Woodward et al. (2019), using the metrics recommended in NatureScot's Guidance Note 3.
- 5.1.5.3 It should be noted that black guillemot (*Cepphus grylle*) and common eider (*Somateria mollissima*) are the only two protected seabird species for MPA and MCZ sites on the East Coast of the UK. The breeding-season foraging ranges applied are 9.1 km for black guillemot (mean maximum plus one standard deviation) and 21.5 km for common eider (mean maximum).

5.2 Screening Outcomes

- 5.2.1.1 As stated in **paragraph 5.1.1.4**, the Screening Study Area based on the Marine Mammal Regional Study Area (as detailed in **Volume 2, Chapter 5: Marine Mammals, of the PEIR**), has been used to identify all MPAs/MCZs within this area, these are presented in **Table 5.1** and shown on **Figure 5.1**.
- 5.2.1.2 Each site within the Screening Study Area has then been screened in or out considering the qualifying features, the proposed activities and the Zol criteria detailed in **Section 5**.
- 5.2.1.3 Sites or individual impact pathways have been screened out where no credible source-pathway-receptor linkage has been identified, or where the available evidence demonstrates that any effects would be insignificant. Where considered effects cannot be ruled out, the relevant site and impact pathway have been screened in for Stage 1 assessment. The pathway-specific screening decisions and supporting justification are presented in **Section 5.4** and **Table 5.2**.

Table 5.1: MPA and MCZ sites within the Screening Study Area

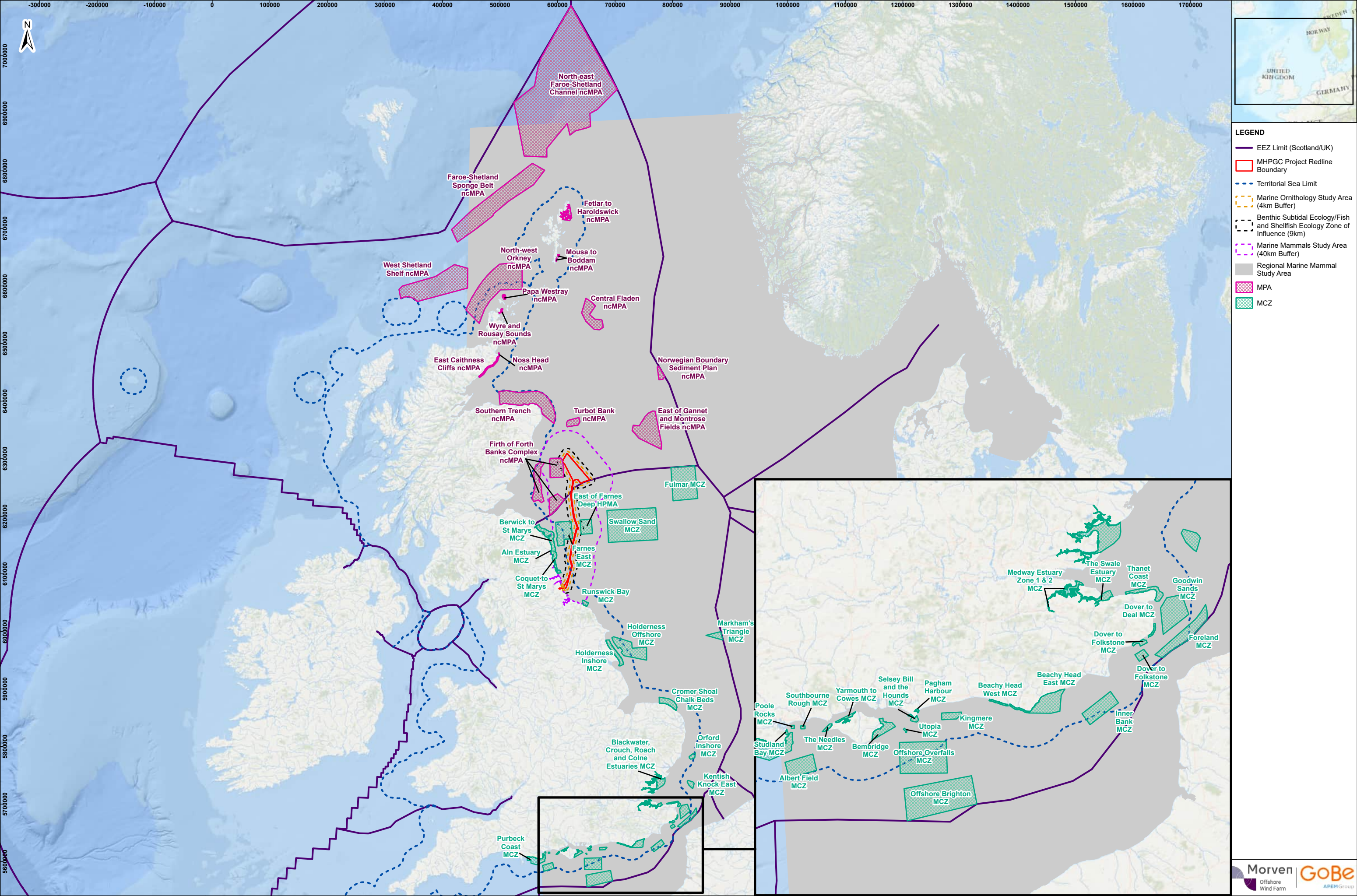
Site name	Protected features	Distance from MHPGC Project PEIR Red Line Boundary at the closest point (km)	Screening outcome
NC MPA (Scotland)			
Firth of Forth Banks Complex NC MPA	- Offshore subtidal sands and gravels; - Ocean quahog <i>Arctica islandica</i> aggregations; - Shelf banks and mounds large scale feature; - Moraines representative of the Wee Bankie key geodiversity area.	0.04	Screened in The Firth of Forth Banks Complex NC MPA (Montrose Bank parcel) falls within the 9 km tidal excursion buffer, which is the maximum Zol applied to benthic and geodiversity features. Of note, the shelf banks and mounds and moraines features are not taken forward for further assessment, as their mapped extents lie outside the 9 km Zol. This is consistent with the scoping consultation advice, provided in consultation with NatureScot and JNCC, which agreed that these features could be screened out. No works will occur within the Firth of Forth Banks Complex NC MPA, and Volume 2, Chapter 1: Physical Processes, of the PEIR predicts that changes to sediment transport and seabed morphology will be highly localised, with negligible effects within the site. Offshore subtidal sands and gravels and ocean quahog aggregations specifically within the Montrose Bank parcel are taken forward for assessment under benthic ecology, including potential effects from increased suspended sediment concentrations and associated deposition, as detailed in Section 5.4.
Turbot Bank NC MPA	Sandeels Ammodytidae.	46.5	Screened out

Site name	Protected features	Distance from MHPGC Project PEIR Red Line Boundary at the closest point (km)	Screening outcome
			Turbot Bank NC MPA falls outside the 9km tidal excursion buffer, which is the maximum Zol for fish and shellfish receptors.
Southern Trench NC MPA	- Minke whale <i>Balaenoptera acutorostrata</i>; - Burrowed mud; - Fronts; - Shelf deeps; - Quaternary of Scotland: Moraines; - Quaternary of Scotland: Sub-glacial tunnel valleys; - Submarine Mass Movement: Slide scars.	56.8	Screened out Southern Trench NC MPA falls outside the 30km Zol for sites with marine mammal features and outside the 9km Zol for sites with benthic ecology features.
East of Gannet and Montrose Fields NC MPA	- Ocean quahog; - Offshore subtidal sands and gravels - Offshore deep sea muds.	112	Screened out East of Gannet and Montrose Fields NC MPA falls outside the 9km tidal excursion buffer, which is the maximum Zol for benthic ecology receptors.
East Caithness Cliffs NC MPA	Black guillemot <i>Cepphus grylle</i>.	199	Screened out East Caithness Cliffs NC MPA falls outside the 4km Zol for sites with marine ornithology features. The MHPGC Project and its surrounding 4 km marine ornithology Zol lie beyond the mean maximum plus one standard deviation foraging range of black guillemot associated with the site. Therefore, no spatial connectivity is identified for the ornithological impact pathways considered.
Norwegian Boundary Sediment Plain NC MPA	- Ocean quahog; - Offshore subtidal sands and gravels.	204	Screened out Norwegian Boundary Sediment Plain NC MPA falls outside the 9km tidal excursion buffer, which is the maximum Zol for benthic ecology receptors.

Site name	Protected features	Distance from MHPGC Project PEIR Red Line Boundary at the closest point (km)	Screening outcome
Noss Head NC MPA	Horse mussel <i>Modiolus modiolus</i> beds.	205	Screened out Noss Head NC MPA falls outside the 9km tidal excursion buffer, which is the maximum Zol for benthic ecology receptors.
Central Fladen NC MPA	- Burrowed mud; - Quaternary of Scotland.	221	Screened out Central Fladen NC MPA falls outside the 9km tidal excursion buffer, which is the maximum Zol for benthic ecology receptors.
MCZ (England)			
Farnes East MCZ	- Sea-pen and burrowing megafauna communities; - Ocean quahog; - Moderate energy circalittoral rock; - Subtidal coarse sediment; - Subtidal mixed sediments; - Subtidal sand; - Subtidal mud.	2.2	Screened in Farnes East MCZ falls within the 9km tidal excursion buffer, which is the maximum Zol for sites with benthic ecology features.
North East of Farnes Deep MCZ	- Subtidal coarse sediment; - Subtidal mixed sediments; - Subtidal sand; - Subtidal mud; - Ocean quahog.	4.1	Screened in North East of Farnes Deep MCZ falls within the 9km tidal excursion buffer, which is the maximum Zol for sites with benthic ecology features. As this site overlaps entirely with the North East of Farnes HPMA, this site will only be considered in the HPMA assessment due to the conservation objectives of the HPMA superseding those of the MCZ.
North East of Farnes Deep HPMA	Entire marine ecosystem.	4.1	Screened in

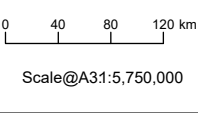
Site name	Protected features	Distance from MHPGC Project PEIR Red Line Boundary at the closest point (km)	Screening outcome
			North East of Farnes Deep HPMA falls within the Zol for benthic ecology and fish receptors (9km), and marine mammal receptors (30km). This site will be assessed following an ecosystem led approach [see Section 7].
Coquet to St Mary's MCZ	• High energy infralittoral rock; • High energy intertidal rock; • Intertidal coarse sediment; • Intertidal mixed sediments; • Intertidal mud; • Intertidal sand and muddy sand; • Intertidal underboulder communities; • Low energy intertidal rock; • Moderate energy circalittoral rock; • Moderate energy infralittoral rock; • Moderate energy intertidal rock; • Peat and clay exposures; • Subtidal coarse sediment; • Subtidal mixed sediments; • Subtidal mud; • Subtidal sand.	14.6	Screened out Coquet to St Mary's MCZ falls outside the 9km tidal excursion buffer, which is the maximum Zol for benthic ecology receptors.
Berwick to St Mary's MCZ	• Common eider Somateria mollissima.	14.6	Screened out Berwick to St Mary's MCZ falls outside the 4km Zol for sites with marine ornithology features.
Aln Estuary MCZ	• Coastal saltmarshes and saline reedbeds; • Estuarine rocky habitats; • Intertidal mud; • Sheltered muddy gravels.	34.5	Screened out Aln Estuary MCZ falls outside the 9km tidal excursion buffer, which is the maximum Zol for benthic ecology receptors.

Site name	Protected features	Distance from MHPGC Project PEIR Red Line Boundary at the closest point (km)	Screening outcome
Runswick Bay MCZ	• Ocean quahog; • High energy intertidal rock; • Intertidal sand and muddy sand; • Low energy intertidal rock; • Moderate energy circalittoral rock; • Moderate energy infralittoral rock; • Moderate energy intertidal rock; • Subtidal coarse sediment; • Subtidal mixed sediments; • Subtidal mud; • Subtidal sand.	35.3	Screened out Runswick Bay MCZ falls outside the 9km tidal excursion buffer, which is the maximum Zol for benthic ecology receptors.
Swallow Sand MCZ	• Subtidal coarse sediment; • Subtidal sand; • North Sea glacial tunnel valleys: Swallow Hole.	51.2	Screened out Swallow Sand MCZ falls outside the 9km tidal excursion buffer, which is the maximum Zol for benthic ecology receptors.
Fulmar MCZ	• Ocean quahog; • Subtidal mixed sediments; • Subtidal mud; • Subtidal sand.	142	Screened out Fulmar MCZ falls outside the 9km tidal excursion buffer, which is the maximum Zol for benthic ecology receptors.
Markham's Triangle MCZ	• Subtidal coarse sediment; • Subtidal mixed sediments; • Subtidal mud; • Subtidal sand.	256	Screened out Markham's Triangle MCZ falls outside the 9km tidal excursion buffer, which is the maximum Zol for benthic ecology receptors.



Project Name:
MORVEN HAWTHORN PIT GRID
CONNECTION PROJECT

Drawing Title:
MPA/MCZ AND HPMA CONSIDERED FOR SCREENING INTO STAGE ONE MPA/MCZ
AND HPMA ASSESSMENT



Geodetic Information:
Datum: European 1950
Projection: ED 1950 UTM Zone 30N

Data Sources:
BP, Ordnance Survey

Service Layer Credits:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Ocean Base: OceanWise, Esri, GEBCO, Garmin, NaturalVue

Drawing Number:
FIGURE 5-3

VER	DATE	DETAILS	BY	CHECK
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5.2.1.4 In summary, the sites that have been screened in for further assessment are:

- MPA (Scotland) sites:
 - Firth of Forth Banks Complex NC MPA.
- MCZ (England) sites:
 - Farnes East MCZ;
 - North East of Farnes Deep MCZ.
- HPMA (England) sites:
 - North East of Farnes Deep HPMA.

5.2.1.5 For the consent applications an MPA/MCZ Stage 1 assessment will be produced to provide any updated screening and Stage 1 assessment of Firth of Forth Banks Complex NC MPA and Farnes East MCZ. The proposed methodology for this assessment is provided in **Section 5.4.1.66**. A separate North East of Farnes HPMA Ecosystem Assessment Report will be produced to provide the assessment for the HPMA, the proposed approach for this report is provided in **Section 7**. As this HPMA overlaps entirely with the North East of Farnes MCZ, this site will only be considered in the HPMA assessment and not in the MPA/MCZ assessment due to the conservation objectives of the HPMA superseding those of the MCZ.

5.3 Description of Sites and Protected Features Screened into MPA/MCZ Stage 1 Assessment

5.3.1 Firth of Forth Banks NC MPA (Montrose Bank parcel) (Scottish waters)

Protected features

- Offshore subtidal sands and gravels;
- Ocean quahog aggregations;
- Shelf banks and mounds large-scale feature (feature not screened in);
- Moraines representative of the Wee Bankie key geodiversity area (feature not screened in).

Overview

- 5.3.1.1 The Firth of Forth Banks Complex NC MPA covers an area of 2,130km² off the east coast of Scotland. The NC MPA was designated by Marine Scotland in 2014 (JNCC, 2018). The Firth of Forth Banks Complex NC MPA is a composite site and the boundaries of each of the three areas (Berwick Bank, Scalp Bank and Wee Bankie, and Montrose Banks) were determined by the presence and extent of the features contained within them.
- 5.3.1.2 The Montrose Bank parcel of the NC MPA is approximately 40m from the MHPGC Project PEIR Red Line Boundary, at its closest point, and therefore falls within the 9km ZoI for benthic habitats and species. The Montrose Bank parcel of the NC MPA is characterised by a high diversity of coarse sediment, mixed sediment, sand and muddy sand habitats, which support juvenile ocean quahog aggregations (JNCC, 2014). Ocean quahog is listed on the OSPAR List of Threatened and/or Declining Species and Habitats and is a PMF in Scotland. It is a slow growing and incredibly long-lived filter feeder that lives buried in soft sediments meaning it is often slow to recover following disturbance. The species is considered particularly vulnerable to seabed disturbance within the OSPAR maritime area Region II (the Greater North Sea; OSPAR Commission, 2009).
- 5.3.1.3 Offshore subtidal sands and gravels are also a designated feature present within the Montrose Bank parcel (JNCC, 2014). This habitat is included on the list of habitats of principal importance for biodiversity conservation under Section 2(4) of the Nature Conservation (Scotland) Act 2004 and is recognised as a PMF in Scottish waters. The habitat was previously identified as a UK Biodiversity Action Plan Priority Habitat. Although widespread, subtidal sands and gravels are vulnerable to physical disturbance and pollution pressures, including those associated with seabed activities (JNCC, 2008).

- 5.3.1.4 The Berwick Bank parcel is located approximately 11.9km from the MHPGC Project PEIR Red Line Boundary, beyond the 9km Zol for benthic habitats and species. This parcel is dominated by sand and muddy sand sediments and contains offshore circalittoral coarse sediment and offshore circalittoral sand habitats. Ocean quahog has been identified in grab samples from this area, and moraines occur along the southern and eastern boundaries of the parcel (JNCC, 2014).
- 5.3.1.5 The Scalp Bank and Wee Bankie parcel, located approximately 32.6km from the MHPGC Project PEIR Red Line Boundary, is the westernmost component of the NC MPA and beyond the 9km Zol for benthic habitats and species. This parcel includes extensive moraine features representative of the Wee Bankie Key Geodiversity Area, formed during the Quaternary of Scotland. Seabed sediments in this area are dominated by coarse sediment, sand, and muddy sand. Broader seabed surveys across the Firth of Forth Banks Complex NC MPA have identified additional habitats of conservation interest, including *Modiolus modiolus* beds on muddy gravels and coarse sands and seapen and burrowing megafauna communities on finer sediments, particularly within the Scalp Bank and Wee Bankie parcel (Axelsson *et al.*, 2014). Stony reef features have also been recorded at several locations across the NC MPA.
- 5.3.1.6 Shelf banks and mounds large-scale features and moraines representative of the Wee Bankie key geodiversity area designated within the NC MPA occur within the Berwick Bank and Scalp Bank and Wee Bankie parcels. These features are elevated seabed structures formed by strong tidal currents and glacial processes, respectively, and provide structurally complex habitats supporting diverse benthic communities (JNCC, 2024a).

Conservation objectives

- 5.3.1.7 With respect to offshore subtidal sands and gravels within the Firth of Forth Banks Complex NC MPA (Montrose Bank parcel), this means that:
- Extent is stable or increasing;
 - Structures and functions, quality and the composition of characteristic biological communities (which includes a reference to the diversity and abundance of species forming part of or living within the habitat) are such as to ensure that they remain in a condition which is healthy and not deteriorating.
- 5.3.1.8 With respect to the ocean quahog aggregations within the Firth of Forth Banks Complex NC MPA, this means that:
- The quality and quantity of its habitat and the composition of its population in terms of number, age and sex ratio are such as to ensure that the population is maintained in numbers which enable it to thrive.

5.3.2 Farnes East MCZ (English waters)

Protected features

- Moderate energy circalittoral rock;
- Subtidal coarse sediment;
- Subtidal mixed sediments;
- Subtidal sand;
- Subtidal mud;
- Sea-pen and burrowing megafauna communities;
- Ocean quahog.

Overview

- 5.3.2.1 The Farnes East MCZ is located off the northeast coast of England, covering an area of 945km². The MCZ is a joint inshore and offshore site, which was designated in 2016. The Farnes East MCZ is located approximately 2.2km from the MHPGC Project PEIR Red Line Boundary, within the 9km tidal excursion buffer.
- 5.3.2.2 The seabed in the site is predominantly composed of subtidal coarse sediment, subtidal sand, and subtidal mixed sediments, with some small patches of moderate energy circalittoral rock. At the

deepest point of the MCZ, there is a glacial trench, which contains subtidal mud (JNCC, 2025b). These subtidal sediment types are all listed as protected features of the MCZ. The Farnes East MCZ post-survey site report combined data from the 2012 and 2014 site verification surveys and analysed the biotypes. The results confirmed the presence of moderate energy circalittoral rock, subtidal coarse sediment, subtidal sand, subtidal mud, and subtidal mixed sediments (Defra, 2015).

- 5.3.2.3 The Farnes East MCZ also supports populations of ocean quahog, a protected feature of the site and an OSPAR List of Threatened and/or Declining Species and Habitats. It is a slow growing and long-lived filter feeder that lives buried in soft sediments meaning it is often slow to recover following disturbance (OSPAR Commission, 2009; JNCC, 2025b).
- 5.3.2.4 Protected features of the Farnes East MCZ also include seapen and burrowing megafauna communities. Seapen species that are found within the site include the slender seapen (*Virgularia mirabilis*) and phosphorescent seapen (*Pennatulula phosphorea*). Norway lobster (*Nephrops norvegicus*) are also found throughout the site, which spend a significant amount of their life burrowing in deep mud habitat, emerging to feed at night (JNCC, 2025b).

Conservation objectives

- 5.3.2.5 Subject to natural change, the moderate energy circalittoral rock, subtidal coarse sediment, subtidal sand, subtidal mud, subtidal mixed sediments and seapen and burrowing megafauna communities features are to remain in or be brought into favourable condition, such that their:
- Extent is stable or increasing;
 - Structures and functions, quality and the composition of their characteristic biological communities are such as to ensure that they are in a condition which is healthy and not deteriorating.
- 5.3.2.6 Subject to natural change, the ocean quahog feature is to remain in or be brought into favourable condition, such that:
- The quality and extent of its habitat is stable or increasing;
 - The population structure allows numbers to be maintained or increased.

5.3.3 North East of Farnes Deep MCZ (English waters)

Protected features

- Subtidal coarse sediment;
- Subtidal mixed sediments;
- Subtidal sand;
- Subtidal mud;
- Ocean quahog.

Overview

- 5.3.3.1 The North East of Farnes Deep MCZ is located off the north east coast of England, approximately 4.1km east of the MHPGC Project PEIR Red Line Boundary and lies within the 9km tidal excursion buffer. The MCZ covers an area of approximately 492km² and was designated as an MCZ in 2013 for the broadscale habitats subtidal coarse sediment and subtidal sand, with additional features designated in January 2016; subtidal mixed sediments and subtidal mud, and ocean quahog (JNCC, 2024b).
- 5.3.3.2 The seabed in the North East of Farnes Deep MCZ is mainly composed of subtidal mixed sediments, with subtidal sand and subtidal coarse sediment each also occupying approximately a quarter of the total site area, with a small area of subtidal mud present in the west of the site. All of these are designated as protected features of the MCZ. The geological and geographical features of the site include glacial features and topographic features of the North East Bank seabed mound or pinnacle; however, these are not designated features of the MCZ.
- 5.3.3.3 The faunal communities for the North East of Farnes Deep MCZ have been characterised from community analysis of offshore grab and video data (Allen *et al.*, 2016). Polychaetes were common

across the area including *Hydroides norvegica*, *Paramphinoe jeffreysii*, *Galathea oculata*, *Paraonidae lyra* and *Mediomastus fragilis*. Other common fauna within these samples included *Echinocyamus pusillus*, *Lumbrineris asellus*, *Nemertea* and *Sipuncula*. Biotopes identified from these surveys included:

- Polychaete-rich deep Venus community in offshore mixed sediments;
- *Echinocyamus pusillus*, *Ophelia borealis* and *Abra prismatica* in circalittoral fine sand;
- *Owenia fusiformis* and *Amphiura filiformis* in offshore circalittoral sand or muddy sand;
- Circalittoral fine sand;
- Circalittoral mixed sediment.

Conservation objectives

5.3.3.4 With respect to subtidal coarse sediment, subtidal sand, subtidal mixed sediments and subtidal mud within the North East of Farnes Deep MCZ, this means that:

- Extent is stable or increasing;
- Structures and functions, quality and the composition of characteristic biological communities (which includes a reference to the diversity and abundance of species forming part of or inhabiting each habitat) are such as to ensure that they remain in a condition which is healthy and not deteriorating.

5.3.3.5 In relation to the ocean quahog within the North East of Farnes Deep MCZ, this means that:

- The quality and quantity of its habitat and the composition of its population in terms of number, age and sex ratio are such as to ensure that the population is maintained in numbers which enable it to thrive. Any temporary reduction of numbers is to be disregarded if the population is sufficiently thriving and resilient to enable its recovery. Any alteration to that feature brought about entirely by natural processes is to be disregarded.

5.4 Screening of Impact Pathways

5.4.1.1 Project description details of the MHPGC Project have been used to identify the impact pathways, which have been considered in terms of both direct and indirect interactions between the MHPGC Project and designated sites. Direct pathways are defined as those involving a physical overlap between the project boundary and a designated site, such as the installation of a cable within an MPA/MCZ site. Direct impact pathways may include temporary and permanent habitat loss, impacts from electromagnetic fields, or due to thermal emissions from subsea electrical cables, colonisation of hard substrates and removal of hard substrates. As no sites overlap with the MHPGC Project PEIR Red Line Boundary, there is no potential for any direct pathway effects and these are not considered further in this assessment. The assessment will therefore focus on indirect pathways, whereby MHPGC Project-related effects, such as the disturbance and subsequent dispersion of seabed sediments, could interact with designated features beyond the MHPGC Project PEIR Boundary.

5.4.1.2 The screening exercise has been informed by the findings of the relevant PEIR technical assessment (**Volume 2, Chapter 3: Benthic Subtidal and Intertidal Ecology, of the PEIR**). Impact pathways were screened out where available evidence demonstrated that project-related effects would be highly localised, temporary and/or of negligible magnitude, such that a credible source-pathway-receptor linkage to designated features could not be established and there would be no realistic potential to affect the relevant conservation objectives. Where a source-pathway-receptor linkage could not be ruled out, the impact pathway was screened in for Stage 1 assessment on a precautionary basis.

5.4.1.3 The MHPGC Project description is detailed in **Volume 1, Chapter 2: Project Description, of the PEIR**. Relevant Maximum Design Scenarios (MDS) have been provided in **Volume 2, Chapter 3: Benthic Subtidal and Intertidal Ecology, of the PEIR**.

5.4.1.4 For decommissioning, the MPA/MCZ Screening and Stage 1 assessment, as adopted elsewhere in the PEIR, will consider the following approach:

- The MHPGC Project has a lifespan of approximately 35 years. As this work is planned decades into the future, the exact methodology required for decommissioning is unknown, though it will be based on the best available technology available at the time.

- In the years leading up to the end of the MHPGC Project's operational life, decommissioning options will be evaluated through further environmental, technical and economic assessments, with the objective being to minimise short- and long-term effects on the environment, whilst ensuring the sea is safe for other users to navigate. The current approach and maximum design scenario that will be assessed for decommissioning is the full removal of all materials, where it is practicable and environmentally appropriate. However, in many cases it may be more environmentally beneficial to leave assets in place. The decommissioning approach will be reviewed at the time of decommissioning following the most up to date and best available guidance.

5.4.1.5 For each MPA/MCZ site screened in (identified in **Section 5.2** and shown in **Table 5.1**), the relevant impact pathways screened in for assessment for each site, and reasons for its inclusion, are identified and summarised in **Table 5.2** below.

Table 5.2: Screening of indirect impact pathways for Stage 1 assessment.

Impact pathway	Summary of impact pathway	Relevant designated site	Relevant receptor(s)	Screening decision	Phase		
					C	O&M	D
Increased SSCs and associated deposition	Construction phase: Several construction activities undertaken during the pre-installation and installation phases of the MHPGC Project, particularly route preparation and any required UXO clearance, have the potential to disturb seabed sediments, resulting in their temporary suspension within the water column. Sediment disturbance also includes dredge spoil disposal which is likely to occur within the MHPGC Project PEIR Red Line Boundary as a result of sand wave levelling. These sediment disturbing activities can create a sediment plume in the water column which can travel away from the MHPGC Project PEIR Red Line Boundary and deposit on habitats elsewhere. Volume 2, Chapter 1: Physical Processes, of the PEIR describes local sediment conditions and hydrodynamics around the MHPGC Project. Sediment dispersion modelling has been undertaken in Volume 2, Annex 1.2: Model Design and Validation, of the PEIR, and concluded that the majority of disturbed sediment is expected to result from seabed preparation and installation activities including sandwave levelling, dredge spoil disposal and pre-lay trenching. The seabed within the MHPGC Project PEIR Red Line Boundary is largely characterised by coarse sediment with small contributions of mud (see Volume 2, Annex 3.1: Benthic Ecology Technical Report, of the PEIR). Coarse sediment is expected to deposit on the seabed rapidly within 50m of the MHPGC Project PEIR Red Line Boundary, resulting in highly localised effects. There is the potential for finer fractions to be	Firth of Forth Banks Complex NC MPA	Offshore subtidal sands and gravels; Ocean quahog aggregations.	Screened in The Montrose Bank parcel of the Firth of Forth Banks Complex NC MPA is 0.04km from the MHPGC Project PEIR Red Line Boundary. As the majority of coarse sediment is expected to be deposited within 50m of the MHPGC Project PEIR Red Line Boundary, there is potential for increased SSC and associated deposition within the Montrose Bank boundary. Sensitivity of benthic habitat and species can vary depending on factors including tolerance to smothering and different feeding methods such as filter and suspension feeding. Therefore, the Montrose Bank parcel of the Firth of Forth Banks Complex NC MPA is screened in for benthic habitats and species receptors in relation to increased SSC and associated deposition. The Berwick Bank and Scalp Bank and Wee Bankie parcels of the Firth of Forth Banks Complex NC MPA are outside the 9km tidal excursion buffer. Therefore, there are no anticipated impacts from increased SSC and associated deposition for these sites, and only the Montrose Bank parcel is screened in for the Stage 1 assessment.	✓	✗	✓

Impact pathway	Summary of impact pathway	Relevant designated site	Relevant receptor(s)	Screening decision	Phase		
					C	O&M	D
	carried beyond this point up to the 9km tidal excursion buffer and deposited within approximately 48 hours of the disturbance. Furthermore, a deposition thickness of 1 to 5cm is likely to occur in very localised areas (0-500m) each side of the MHPGC Project PEIR Red Line Boundary and will depend on the speed and direction of tidal currents. <u>O&M phase:</u> Operational activities that may result in seabed disturbance during the O&M phase include cable repair and remediation activities. These activities have the potential to generate temporary increases in SSC and associated sediment deposition. However, the frequency and scale of such activities are expected to be substantially lower than those associated with construction. Increased SSC and associated deposition were therefore scoped out of the O&M benthic ecology assessment and are not considered further for the purposes of this screening exercise. Whilst construction-phase sediment modelling provides a conservative indication of the potential behaviour of suspended sediments in the receiving environment, the volume of sediment likely to be disturbed during O&M activities would be considerably lower. Consequently, any increases in SSC and associated sediment deposition are expected to be temporary, localised and limited to the vicinity of the works. <u>Decommissioning phase:</u> As a worst-case scenario, the scale of increased SSC and associated deposition during decommissioning are likely to be of a similar magnitude to construction phase and/or O&M phase activities, depending upon the	Farnes East MCZ	Moderate energy circalittoral rock; Subtidal coarse sediment; Subtidal mixed sediments; Subtidal sand; Subtidal mud; Sea-pen and burrowing megafauna communities; Ocean quahog.	Screened in The Farnes East MCZ is 2.2km from the MHPGC Project PEIR Red Line Boundary. Therefore, there is potential for finer sediment fractions from the MHPGC Project to be deposited within the MCZ boundary. Sensitivity of benthic habitat and species can vary depending on factors including tolerance to smothering and feeding methods. Therefore, the Farnes East MCZ is screened in for benthic habitats and species receptors in relation to increased SSC and associated deposition.	✓	✗	✓
		North East of Farnes Deep MCZ	Subtidal coarse sediment; Subtidal mixed sediments; Subtidal sand; Subtidal mud; Ocean quahog.	Screened in The North East of Farnes Deep MCZ is 4.1km from the MHPGC Project PEIR Red Line Boundary. Therefore, there is potential for finer sediment fractions from the MHPGC Project to be deposited within the MCZ boundary. Sensitivity of benthic habitat and species can vary depending on factors including tolerance to smothering and feeding methods. Therefore, the North East of Farnes Deep MCZ is screened in for benthic habitats and species receptors in relation to increased SSC and associated deposition for all project phases.	✓	✗	✓

Impact pathway	Summary of impact pathway	Relevant designated site	Relevant receptor(s)	Screening decision	Phase		
					C	O&M	D
	decommissioning option selected (full cable removal or cable left <i>in situ</i>).						
Disturbance/remobilisation of sediment bound contaminants	<u>Construction phase:</u> Indirect effects of sediment disturbance during the construction phase can include the disturbance and/or the remobilisation of sediment bound contaminants into the water column. This can include remobilisation of heavy metals and hydrocarbons bound up in sediments, resulting in an increase of contaminant concentrations above background levels. The distance to which disturbed/remobilised sediment bound contaminants could be carried from the MHPGC Project PEIR Red Line Boundary is expected to be in line with the maximum dispersion distance for increased SSC and deposition of 9km (see Volume 2, Annex 1.2: Physical Processes Technical Report, of the PEIR). However, in reality, due to local hydrodynamics, any sediment-bound contaminants are expected to be diluted and dispersed rapidly to background concentrations within a short distance of the MHPGC Project PEIR Red Line Boundary. The presence and concentrations of polychlorinated biphenyls, polycyclic aromatic hydrocarbons, organotins and heavy metals within sediments in the MHPGC Project PEIR Red Line Boundary are discussed in Volume 2, Annex 3.1: Benthic Ecology Technical Report, of the PEIR and Volume 2, Chapter 2: Offshore Water and Sediment Quality. <u>O&M phase:</u> Operational activities that may result in seabed disturbance during the O&M phase include cable	All MPA/MCZs detailed in Table 5.3 .	All benthic features of MPA/MCZs	Screened out Sediment contaminant concentrations are generally consistent with background conditions, with contaminants either absent or present at concentrations below relevant assessment thresholds. Any remobilisation of contaminants resulting from seabed disturbance would be temporary, localised and subject to rapid dispersion. The assessment presented in Volume 2, Chapter 3: Benthic Subtidal and Intertidal Ecology of the PEIR concluded that this would result in an impact of negligible magnitude and a minor adverse, non-significant effect, even for the most sensitive benthic receptors. Therefore, no likely significant effect is anticipated.	X	X	X

Impact pathway	Summary of impact pathway	Relevant designated site	Relevant receptor(s)	Screening decision	Phase		
					C	O&M	D
	inspection, repair and remediation activities. These activities have the potential to generate temporary increases in SSC and associated sediment deposition. However, such activities are anticipated to be infrequent, of short duration and spatially restricted compared with construction activities. Any sediment disturbance associated with O&M activities is expected to be highly localised and substantially lower in magnitude than that predicted for the construction phase. As a result, any increases in SSC and associated sediment deposition are expected to be temporary and confined to the immediate vicinity of the activity. <u>Decommissioning phase:</u> As a worst-case scenario, the scale of disturbance/remobilisation of sediment bound contaminants during decommissioning are likely to be of a similar magnitude to construction phase and/or O&M phase activities, depending upon the decommissioning option selected (full cable removal or cable left <i>in situ</i>).						
Increased risk of introduction and spread of INNS	<u>Construction phase:</u> During construction, an increased risk of introduction and spread of INNS could result from the use of vessels for route clearance and cable installation within the MHPGC Project PEIR Red Line Boundary. INNS could be transported via vessel hulls or through the release of ballast water. <u>O&M phase:</u> During the O&M phase, there is potential for the introduction and spread of INNS through maintenance vessel movements and the long-term presence of hard infrastructure, including cable protection and cable crossings. The	Firth of Forth Banks Complex NC MPA	Offshore subtidal sands and gravels; Ocean quahog aggregations.	Screened in The Montrose Bank parcel of the Firth of Forth Banks Complex NC MPA is located approximately 0.04km from the MHPGC Project PEIR Red Line Boundary. Project activities have the potential to facilitate the introduction and spread of INNS through vessel movements and the placement of infrastructure within the marine environment. Whilst embedded mitigation and biosecurity measures are expected to minimise this risk, a source-	✓	✓	✓

Impact pathway	Summary of impact pathway	Relevant designated site	Relevant receptor(s)	Screening decision	Phase		
					C	O&M	D
	introduction of artificial hard substrate within predominantly sediment habitats may provide opportunities for colonisation by INNS and could facilitate their spread by acting as stepping-stone habitat between existing populations. <u>Decommissioning phase:</u> During decommissioning, there is potential for the introduction and spread of INNS through vessel activity associated with the removal of infrastructure, similar to the pathways identified during construction. INNS could be transported via hull fouling or ballast water and introduced to the surrounding environment.			pathway-receptor linkage cannot be ruled out due to the close proximity of the designated site. Therefore, the Montrose Bank parcel of the Firth of Forth Banks Complex NC MPA is screened in for further assessment in relation to the introduction and spread of INNS on a precautionary basis. Sensitivity to the introduction and spread of INNS can vary between habitats and species based on vulnerability and resistance. Some non-native species can out-compete native species and reduce habitat and food availability, resulting in competition for resources. Indirect impacts such as disease spread are also possible. The Berwick Bank and Scalp Bank and Wee Bankie parcels of the Firth of Forth Banks Complex NC MPA are outside the 9km tidal excursion buffer and are therefore located substantially further from the MHPGC Project PEIR Red Line Boundary and there is no direct interaction with project infrastructure. Therefore, a source-pathway-receptor linkage for the introduction and spread of INNS is considered unlikely and only the Montrose Bank parcel is taken forward for Stage 1 assessment.			

Impact pathway	Summary of impact pathway	Relevant designated site	Relevant receptor(s)	Screening decision	Phase		
					C	O&M	D
		Farnes East MCZ	Moderate energy circalittoral rock; Subtidal coarse sediment; Subtidal mixed sediments; Subtidal sand; Subtidal mud; Sea-pen and burrowing megafauna communities; Ocean quahog.	Screened in The Farnes East MCZ is located approximately 2.2km from the MHPGC Project PEIR Red Line Boundary. Project activities have the potential to facilitate the introduction and spread of INNS through vessel movements, biofouling and the introduction of artificial hard substrate. Given the sensitivity of the designated benthic features and stakeholder interest in this pressure, Farnes East MCZ is screened in for further assessment in relation to the introduction and spread of INNS. Sensitivity to the introduction and spread of INNS can vary between habitats and species based on vulnerability and resistance. Some non-native species can out-compete native species and reduce habitat and food availability, resulting in competition for resources. Indirect impacts such as disease spread are also possible.	✓	✓	✓

Impact pathway	Summary of impact pathway	Relevant designated site	Relevant receptor(s)	Screening decision	Phase		
					C	O&M	D
		North East of Farnes Deep MCZ	Subtidal coarse sediment; Subtidal mixed sediments; Subtidal sand; Subtidal mud; Ocean quahog.	Screened in The North East of Farnes Deep MCZ is located approximately 4.1km from the MHPGC Project PEIR Red Line Boundary. Project activities have the potential to facilitate the introduction and spread of INNS through vessel movements and biofouling, with subsequent dispersion beyond the immediate Project footprint. Given the recognised concern regarding the introduction and spread of INNS within designated marine sites, North East of Farnes Deep MCZ is screened in for further assessment on a precautionary basis. Sensitivity to the introduction and spread of INNS can vary between habitats and species based on vulnerability and resistance. Some non-native species can out-compete native species and reduce habitat and food availability, resulting in competition for resources. Indirect impacts such as disease spread are also possible.	✓	✓	✓

Impact pathway	Summary of impact pathway	Relevant designated site	Relevant receptor(s)	Screening decision	Phase		
					C	O&M	D
Changes in physical processes	<u>O&M phase</u> Changes in physical processes are considered for O&M only, as they are associated with the long-term presence of infrastructure on the seabed, including cable protection and cable crossings. These structures may result in highly localised changes to seabed morphology, near-bed hydrodynamics and sediment transport processes within the immediate vicinity of the infrastructure footprint. In contrast, construction and decommissioning activities would result only in temporary and localised disturbance and are not expected to cause significant or persistent changes to physical processes.	All MPA/MCZs detailed in Table 5.3 .	All benthic features of MPA/MCZs	Screened out Changes in physical processes are predicted to be highly localised and restricted to the immediate vicinity of installed infrastructure. Consequently, as there is no direct MHPGC Project overlap with any protected sites the impacts from changes in physical processes have been screened out for all sites and all project phases.	X	X	X

Table 5.3: Summary of MPA and MCZ sites and impact pathways screened in for Stage 1 assessment

Site name	Protected features screened in for Stage 1 assessment	Distance to MHPGC Project PEIR Red Line Boundary at the closest point (km)	Impact pathways screened in for Stage 1 assessment
MPA (Scotland)			
Firth of Forth Banks Complex NC MPA	- Offshore subtidal sands and gravels; - Ocean quahog aggregations.	0.04 (Montrose Bank)	Construction: - Increased SSCs and associated deposition. O&M - Increased risk of introduction and spread of INNS. Decommissioning: - Increased SSCs and associated deposition.
MCZ (England)			
Farnes East MCZ	- Moderate energy circalittoral rock; - Subtidal coarse sediment; - Subtidal mixed sediments; - Subtidal sand; - Subtidal mud; - Seapen and burrowing megafauna communities; - Ocean quahog.	2.2	Construction: - Increased SSCs and associated deposition; - Increased risk of introduction and spread of INNS O&M - Increased risk of introduction and spread of INNS. Decommissioning: - Increased SSCs and associated deposition; - Increased risk of introduction and spread of INNS.
North East of Farnes Deep MCZ	- Subtidal coarse sediment; - Subtidal mixed sediments; - Subtidal sand; - Subtidal mud; - Ocean quahog	4.1	Construction: - Increased SSCs and associated deposition; - Increased risk of introduction and spread of INNS. O&M - Increased risk of introduction and spread of INNS. Decommissioning: - Increased SSCs and associated deposition; - Increased risk of introduction and spread of INNS.

5.4.1.6 The approach to the Stage 1 assessment for Firth of Forth Banks Complex NC MPA, Farnes East MCZ and North East of Farnes Deep MCZ is provided in **Section 6**. The Approach to Screening and Ecosystem Level Assessment for North East of Farnes Deep HPMA is provided in **Section 7**.

6 Stage 1 Assessment Methodology

6.1.1 Overview

- 6.1.1.1 This stage of the assessment will determine whether the identified impact pathways are capable of affecting, other than insignificantly, the protected features of an MPA/MCZ or any ecological or geomorphological process on which the conservation of those features is wholly or partly dependent. Where such effects are identified, the assessment will determine whether there is or may be a significant risk of the activities associated with the MHPGC Project hindering the achievement of the conservation objectives stated for the relevant MPA/MCZ. The assessment will consider the scale, timing and duration of all relevant activities associated with the MHPGC Project. A high level summary of the proposed methodology is presented, with the full assessment to be submitted alongside the DCO submission and Scottish Marine Licence Application(s).

Assessment Objectives

- 6.1.1.2 The MMO Guidance (2013) and Marine Scotland MPA Handbook (2014) state that the Stage 1 assessment must consider whether the tests set out in Section 126(6) of the MCAA can be satisfied. Specifically, the relevant authority must be satisfied that there is no significant risk of the proposed activity hindering the achievement of the conservation objectives of the MPA or MCZ.
- 6.1.1.3 As no MPAs within Scottish territorial waters (within 12 nm) have been screened into the assessment, the NCMPAs assessed in Scottish offshore waters are subject to the provisions of the Marine and Coastal Access Act 2009. Under section 116(7) of the MCAA, an MCZ designated by the Scottish Ministers is known as a marine protected area, and references in the MCAA to an MCZ are to be read accordingly.
- 6.1.1.4 In accordance with section 126(6) of the MCAA, the Applicant must satisfy the relevant authority that there is no significant risk of the MHPGC Project hindering the achievement of the conservation objectives stated for the relevant MPA. Where the requirements of section 126(6) cannot be met, authorisation may only be granted where the requirements of section 126(7) are satisfied.

Conservation Objectives

- 6.1.1.5 In Stage 1 the conservation objectives for the MPA and MCZ features need to be considered to assess whether there is a risk the MHPGC Project could hinder them.
- 6.1.1.6 The conservation objectives for MPA features are high level criteria and describe the required condition to achieve a favourable conservation status for the feature and site. The two overarching conservation objectives defined for MPAs are;
- So far as already in a favourable condition, remain in such condition; and
 - So far as not already in a favourable condition, be brought into such condition, and remain in such a condition.
- 6.1.1.7 The conservation objectives for MCZ features are high level criteria describing the desired condition of the MCZ features. While conservation objectives for individual MCZs or certain features are often site-specific, the two overarching conservation objectives defined for MCZs are:
- to maintain a feature in favourable condition if it is already in favourable condition; or
 - to bring a feature into favourable condition if it is not already in favourable condition.
- 6.1.1.8 The MMO Guidance states; "When considering whether an activity can further or hinder the conservation objectives of a site, the MMO will consider the direct impact of an activity upon a feature as well as any applicable indirect impacts. Such an indirect impact could include the changing the effectiveness of a management measure put in place to further the conservation objectives. The applicant should be able to demonstrate that 'other means' reduces the risk such that the act no longer has a significant risk of hindering the conservation objectives of the site".
- 6.1.1.9 The MPA/MCZ assessment will therefore consider if activities associated with the MHPGC Project will result in a loss of favourable condition, hinder its ability to maintain its favourable condition, or prevent the features from recovering to a favourable condition. Any temporary deterioration (not

long-term) can be disregarded if the marine habitat is sufficiently healthy and resilient to allow for natural recovery.

- 6.1.1.10 Where sufficient mitigation to reduce the predicted impacts to an acceptable level cannot be implemented and there are no other means that substantially lower the risk of hindering the achievement of conservation objectives, then a Stage 2 MPA/MCZ assessment would be required.

Assessment of Impact Pathways

- 6.1.1.11 Following impact screening, the sites and impact pathways will be assessed to see if there is potential for significant risk to the conservation objectives of the protected features of the MPA/MCZ. Once the impacts have been considered with regards to the MHPGC Project alone, they will then be considered cumulatively with other projects and plans that also have potential for impact during the same period of time and within the same geographical extent as the MHPGC Project.
- 6.1.1.12 The relevant offshore topic PEIR chapters present assessments of the impacts of the MHPGC Project on the ecological marine environment with regards to benthic, fish and shellfish, marine mammal and offshore ornithology receptors. The definitions of the magnitude of impacts, sensitivity of receptors and the significance of effects on those receptors are defined within those chapters, respectively. These definitions will also be adopted for the purposes of the MPA/MCZ assessment, with the term 'effect' used to express the consequence of an impact.
- 6.1.1.13 The 'significance of effect' is determined by considering the magnitude of the impact alongside the sensitivity of the receptor or resource, in accordance with defined significance criteria in the respective chapters and will bring forward the conclusions of the assessments from the relevant EIA chapters. Of note, the findings of the relevant EIA chapters will inform this assessment, but conclusions will be reached against the site-specific conservation objectives and relevant feature attributes, rather than on the basis of EIA significance classifications alone.

Cumulative and Inter-related Effects

- 6.1.1.14 As part of the MPA/MCZ assessment, it is necessary to carry out an assessment of cumulative and inter-related effects that could hinder the conservation objectives of the MPA/MCZ. Cumulative effects are effects on a single receptor arising from the MHPGC Project when considered alongside the effects of other plans or projects in the same Zol.
- 6.1.1.15 Other plans and projects will be screened into requiring further assessment using the Cumulative Effect Assessment (CEA) Methodology (see **Volume 1, Chapter 4: Approach to Environmental Impact Assessment, of the PEIR**) summarised below.
- 6.1.1.16 In line with PINS advice 'Advice on Cumulative Effects Assessment' (PINS, 2024), cumulative effects comprise those arising from the MHPGC Project with existing developments and existing plans and projects that are 'reasonably foreseeable' and will include;
- Projects that are under construction;
 - Permitted applications, not yet implemented;
 - Submitted applications not yet determined;
 - Projects on the Planning Inspectorate's programme of projects;
 - Developments identified in relevant Development Plans, with weight being given as they move closer to adoption and recognising that much information on any relevant development plan will be limited; and
 - Sites identified in other policy documents which set the framework for future development consents or approvals, as developments reasonably likely to come forward.
- 6.1.1.17 In support to the development of the scenarios listed above, other projects, plans or activities with which the MHPGC Project may interact to produce a cumulative effect will be identified. These interactions may arise within the construction, O&M or decommissioning phases. The following four stage method will be applied to the CEA for the MHPGC Project:
- Stage 1: Establish the long list – A Zol for each receptor will be defined and mapped using Geographic Information System (GIS). Existing and planned developments within the ZOI will be added to the long list. The Zol, within which any potential effects of the MHPGC Project may

combine with the effects arising from other plans, projects and activities, will be defined by environmental specialists and combined into a single area within which other plans, projects and activities will be identified.

- Stage 2: Establish the short list; A process will be followed to methodically and transparently screen the large number of projects and plans that may be considered cumulatively alongside the MHPGC Project. This involves a stepwise process that considers the level of detail available for projects/plans, as well as the potential for interactions to occur and temporal/spatial scales involved.
- Stage 3: Information gathering;
- Stage 4: Assessment.

6.1.1.18 Inter-related effects are those that arise from a number of separate impacts affecting a single receptor. Potential interactions between environmental receptors will be assessed to identify if impacts not considered significant on their own but have the potential to become significant when they inter-relate with other impacts.

6.1.1.19 Inter-related effects can be divided into two categories, as follows:

- Project-lifetime effects: effects which occur throughout more than one project phase;
- Receptor-led effects: effects which interact spatially and temporally to create an effect on a receptor which has a greater significance than when the effects are considered in isolation.

6.2 Stage 2 Assessment

6.2.1.1 Stage 2 of the MPA/MCZ assessment considers whether the conditions in Sections 126(7)(b) and (c) of the MCAA can be met.

6.2.1.2 From the approach suggested by the MMO (2013) and Marine Scotland (2014), the relevant authority will use information supplied by the Applicant with the applications, advice from the SNCBs and any other relevant information to determine whether:

- the benefit to the public of proceeding with the proposed activity clearly outweighs the risk of damage to the environment that will be created by said activity; and, if so, then whether;
- the Applicant can satisfy the relevant authority that they will undertake, or make arrangements for the undertaking of, MEEB to the damage which the activity will or is likely to have on the MPA/MCZ.
- The above determinations will be addressed in sequence, that is, if the public benefit test is not “passed” then a consideration of MEEB would not be made as the application would be rejected.

6.2.1.3 In determining “public benefit” benefits at a national, regional or local level will be considered by the relevant authority.

7 HPMA Ecosystem Level Assessment Methodology

7.1 Overview

- 7.1.1.1 The North East of Farnes Deep HPMA is located off the north east coast of England, approximately 4.1km east of the MHPGC Project PEIR Red Line Boundary. The HPMA covers an area of approximately 492km², overlaps entirely with the North East of Farnes Deep MCZ, and falls within the 9km tidal excursion buffer and the 30km ZoI for marine mammal features.
- 7.1.1.2 The North East of Farnes Deep MCZ was designated by Defra as a HPMA in June 2023 for its relatively high levels of biodiversity in comparison to the wider Northern North Sea region (JNCC, 2024b). This has extended the protection of the site from the previously designated specific features to protect the entire marine ecosystem within the site, which includes all marine flora and fauna, all marine habitats and all geological or geomorphological interests, including all abiotic elements and supporting ecosystem functions and processes, in or on the seabed, water column and the sea surface.
- 7.1.1.3 JNCC and Natural England survey data indicate comparatively high species richness in the HPMA relative to the surrounding region, and the site supports prey for various fish, seabird, and marine mammal species, with diverse benthic, demersal and mobile assemblages present. The area provides nursery and spawning grounds for commercially important fish species including haddock (*Melanogrammus aeglefinus*), whiting (*Merlangius merlangus*), and European smelt (*Osmerus eperlanus*) (Katara et al. 2021). European smelt, also form part of the prey base for larger fish, seabirds and marine mammals. While data availability limits understanding of how seabirds and marine mammals use this area, there is relatively higher concentrations of seabirds and marine mammal species in this area compared to the wider region (JNCC and Natural England, 2022).

7.1.2 Description of North East of Farnes Deep HPMA

Protected features

- 7.1.2.1 Supplementary information provided by NE and JNCC (JNCC and Natural England, 2022), presents the rationale for the key important habitats and species for which the HPMA was designated to protect, which are listed in **Table 7.1**. Geological and geomorphological seabed forms are also present within the HPMA and are of a depositional glacial nature and comprise part of the North-East Bank seabed mound or pinnacle.

Table 7.1: Known habitats and species recorded in the North East of Farnes Deep HPMA (JNCC, 2022a)

Known habitats and species ³ present in North East of Farnes Deep HPMA	
European Union Nature Information System (EUNIS) level 3 broad-scale habitats	• Sublittoral coarse sediment; • Sublittoral sand; • Sublittoral mud; • Sublittoral mixed sediments.
Important habitats	• Subtidal sands and gravels; • Seapens and burrowing megafauna.
Important demersal/benthic species	• Ocean quahog (<i>A. islandica</i>)*.

³ [The known habitats and species listed above refer to the key important habitats and species found on national and international lists of conservation importance, including: Priority Marine Species, OSPAR \(threatened and declining\), FOCI \(Features of Conservation Importance – Habitats and Species\), IUCN red list, EC Habitats Directive \(Habitats and Species\), EC Birds Directive \(Annex I and II\), BoCC4 \(Birds of Conservation Concern 4 – Red and Amber lists\) and WCA 1981 \(Wildlife & Countryside Act 1981\). There are additional species and habitats also reported as being present, including commercial fish and shellfish species.](#)

Known habitats and species³ present in North East of Farnes Deep HPMA

Important fish species	• Flounder (<i>Platichthys flesus</i>); • Atlantic mackerel (<i>Scomber scombrus</i>); • Grey gurnard (<i>Eutrigla gurnardus</i>); • Hagfish (<i>Myxine glutinosa</i>); • Haddock; • Whiting; • European smelt; • Norway lobster (<i>Nephrops norvegicus</i>); • Lemon sole (<i>Microstomus kitt</i>); and • European plaice (<i>Pleuronectes platessa</i>).
Important marine mammal species	• Harbour porpoise (<i>Phocoena phocoena</i>); • Minke whale (<i>B. acutorostrata</i>); • White-beaked dolphin (<i>Lagenorhynchus albirostris</i>); • Grey seal (<i>Halichoerus grypus</i>); • Harbour seal (<i>Phoca vitulina</i>).
Important bird species	• Black-legged kittiwake (<i>Rissa tridactyla</i>); • Common guillemot (<i>Uria aalge</i>); • Herring gull (<i>Larus argentatus</i>); • Northern fulmar (<i>Fulmarus glacialis</i>); • Northern gannet (<i>Morus bassanus</i>); • Razorbill (<i>Alca torda</i>); • Atlantic puffin (<i>Fratercula arctica</i>); • European storm petrel (<i>Hydrobates pelagicus</i>); • Great skua (<i>Stercorarius skua</i>); and • Lesser black-backed gull (<i>Larus fuscus</i>).

7.1.3 Conservation Objectives

7.1.3.1 The protected feature of the North East of Farnes Deep HPMA, is defined as the marine ecosystem of the area. The conservation objectives are to:

- Achieve full recovery of the protected feature, including its structure and functions, its qualities and the composition of its characteristic biological communities present within the North East of Farnes Deep HPMA, to a natural state; and
- Prevent further degradation and damage to the protected feature, subject to natural change.

7.1.3.2 With respect to the North East of Farnes Deep MCZ protected features, JNCC considers that the conservation objectives for North East of Farnes Deep MCZ will be furthered or least hindered if the conservation advice for the HPMA is followed as its protection supersedes the original MCZ designated in 2016. Therefore, JNCC dispenses its obligations under Section 127 of the MCAA for both North East of Farnes Deep MCZ and HPMA through the delivery of its conservation advice for the HPMA.

7.2 HPMA Assessment – Initial Screening Approach

7.2.1.1 North East of Farnes Deep was designated as an MCZ in January 2013 for subtidal coarse sediment and subtidal sand, with subtidal mixed sediments, subtidal mud and ocean quahog (*Arctica islandica*) added as designated features in January 2016. The site was subsequently designated as a HPMA in June 2023, extending protection to the whole marine ecosystem, including the seabed, water column, ecological processes and all species within the site. Further details of the site are provided in **Section 7.1.2**.

- 7.2.1.2 An initial screening assessment will be undertaken to identify whether there are any plausible pathways through which the MHPGC Project could interact with the North East of Farnes Deep HPMA and its conservation objectives. The screening assessment will adopt the same receptor-based methodology applied to MPA and MCZ features (see **Section 5.1**), before subsequently considering the ecosystem level approach that underpins HPMA management and conservation objectives.
- 7.2.1.3 Consistent with the MPA/MCZ assessment, the initial screening will consider benthic habitats and species, fish and shellfish, marine mammals, and marine ornithology. Screening will be informed by the maximum predicted spatial extent of relevant impact pathways and the associated receptor-specific Zols identified within the technical assessments.
- 7.2.1.4 The Zols applied within the HPMA screening will be consistent with those adopted for the MPA/MCZ assessment and will comprise:
- a 9km tidal excursion buffer for benthic habitats and species, and fish and shellfish receptors;
 - a 30km screening extent for marine mammal receptors; and
 - a 4km buffer for marine ornithological receptors, with consideration of designated seabird foraging ranges where relevant.
- 7.2.1.5 Further information on the derivation of these Zols is provided in **Section 5.1**.
- 7.2.1.6 The initial screening assessment will identify whether overlap exists between the HPMA and the relevant receptor-specific Zols, and whether MHPGC Project activities have the potential to affect ecosystem components or the ecological processes that support the conservation objectives of the HPMA. Where no plausible impact pathway is identified, impacts will be screened out from further consideration.
- 7.2.1.7 For receptors and impact pathways screened into the assessment, subsequent stages of the HPMA assessment will apply an ecosystem level approach that extends beyond consideration of individual receptors in isolation. The assessment will consider both effects on ecological receptors (where relevant) and indirect effects on ecosystem structure, functioning and resilience, including trophic interactions, predator-prey relationships, food-web dynamics and the ecological processes that support the wider marine ecosystem. This approach will ensure that potential effects on the conservation objectives of the HPMA are evaluated at both the receptor and ecosystem scales.

7.3 HPMA Assessment – An Ecosystem Level Approach

- 7.3.1.1 The North East of Farnes Deep MCZ was designated by Defra as an HPMA in June 2023 for its relatively high levels of biodiversity in comparison to the wider Northern North Sea region (JNCC, 2023b). In the context of an HPMA, where the conservation objective is focused on ecosystem recovery and functioning, it is important that not only direct or indirect effects on individual features are understood but also how impacts could propagate through the wider ecosystem. An ecosystem-led assessment rather than a traditional receptor-by-receptor assessment is proposed. This proposed HPMA assessment will take a deeper and more holistic approach to assessing the impacts of the MHPGC Project on the wider marine ecosystem of the HPMA.
- 7.3.1.2 The primary purpose of this section of the Report is to provide an approach to assessing the potential impacts arising from the MHPGC Project to demonstrate the risk of hindering the conservation objectives holistically, across key trophic levels on the North East of Farnes Deep HPMA.
- 7.3.1.3 The following guidance will be used in order to complete this assessment;
- Defra (2023a), Highly Protected Marine Areas. Policy Paper;
 - Defra (2023b), Highly Protected Marine Areas: North East of Farnes Deep;
 - The North East of Farnes Deep Highly Protected Marine Area (Marine Conservation Zone) Designation Order 2023;
 - JNCC (2024b), North East of Farnes Deep MPA and HPMA Conservation Advice;
 - JNCC (2022), High Level Conservation Advice for Public Authorities on Highly Protected Marine Areas; and
 - JNCC (2023c), North East of Farnes Deep MPA: Advice on Operations;
 - Defra (2023c), Dolphin Head HPMA and North East of Farnes Deep HPMA Offshore Ecological Baseline Programme – ME4201.

7.3.2 Ecosystem-scale Protection

- 7.3.2.1 The primary purpose of this Report is to provide an approach to assessing the potential impacts arising from the MHPGC Project, to demonstrate the risk of hindering the achievement of the conservation objectives holistically, across key trophic levels. Starting with geological and geomorphological features before moving onto primary producers (organisms that produce organic material using sunlight or chemical energy and form the base of the marine food web) and benthic ecology before moving onto prey species and higher trophic levels. Consequently, the methodology seeks to remain closely aligned with existing MCZ assessment principles while expanding the assessment to explicitly address ecosystem recovery and ecosystem functioning, which are central to the HPMA conservation objectives.
- 7.3.2.2 As HPMA's are MCZs, designated under MCAA, Natural England and JNCC advise public authorities (JNCC 2022) that the statutory duties applicable to MCZs apply to HPMA's and the same assessment and decision-making processes should be followed.
- Activities which are likely to hinder the conservation objective of an HPMA and should be avoided, unless the public authorities' MCZ assessment process determines otherwise.
- 7.3.2.3 For consent, the HPMA assessment would need to show that there is not a risk of further damage to the protected features nor a significant risk of hindering the achievement of the conservation objectives as a result of the MHPGC Project both alone or cumulatively with other plans or projects.

7.4 Step 1 Establishing the Ecosystem Baseline

- 7.4.1.1 The proposed approach will start from the foundation of the ecosystem, looking at geological and geomorphological features that underpin habitat structure, before moving through primary producers and benthic communities that support productivity, and then up through prey resources to higher trophic levels such as seabirds and marine mammals.
- 7.4.1.2 This allows evaluation of whether project effects could alter ecological processes, food-web relationships or recovery trajectories, and therefore hinder achievement of the HPMA conservation objectives.
- 7.4.1.3 This Report will review current literature to establish a baseline of the physical environment (geology and geomorphological processes), primary producers, prey species and predators (marine mammals and megafauna). The review will provide a baseline to inform an ecosystem level assessment of the potential implications, that the MHPGC Project may have.

7.4.2 Geological and Geomorphological Features and Physical Processes

- 7.4.2.1 A detailed baseline characterisation of the HPMA will be undertaken for geological, geomorphological features and physical processes to provide enhanced environmental context for the assessment and to support interpretation of the impact assessment findings. This characterisation will include a detailed evaluation of seabed sediment characteristics, supplemented by new outputs from high-resolution, local-scale sediment transport modelling undertaken within and adjacent to the HPMA and MHPGC Project.
- 7.4.2.2 To further inform the assessment of potential physical processes effects on the HPMA, the existing numerical sediment plume modelling framework developed for the MHPGC Project will be applied to investigate the spatial extent, magnitude and temporal persistence of suspended sediment plumes generated by MHPGC Project activities. Although a range of disturbance scenarios were considered within the PEIR, additional HPMA-specific simulations will be undertaken to generate bespoke outputs directly relevant to the assessment area. Scenario-specific results will include:
- Distribution of SSC at the end of active disturbance and one and three days thereafter;
 - Distribution of maximum instantaneous SSC at any time during and up to three days after the end of active disturbance;
 - Timeseries of SSC at the HPMA during and after the end of active disturbance; and
 - Distribution of resulting sediment deposition thickness.

- 7.4.2.3 These scenarios will include, where relevant, the evaluation of potential in-combination effects associated with multiple sediment-disturbing activities occurring concurrently in proximity to the HPMA.
- 7.4.2.4 The potential for deposited sediment within the HPMA to be subsequently re-mobilised will be evaluated through consideration of prevailing hydrodynamic conditions, including seabed shear stresses generated by tidal currents and wave action. This will facilitate an assessment of the likely residence time of deposited material and the extent to which any increases in sedimentation are likely to persist.
- 7.4.2.5 Outputs from the high-resolution sediment transport modelling will be used to assess the potential for cable protection measures and associated seabed infrastructure to alter local sediment pathways or interfere with sediment connectivity between surrounding areas and the HPMA. This analysis will support an evidence-based evaluation of whether project infrastructure could influence the natural movement and supply of sediment to the protected area, including any indirect associated impacts such as light attenuation

7.4.3 Benthic Ecology and Primary Producers

- 7.4.3.1 The baseline characterisation for benthic ecology and primary producers will utilise the data sources, survey datasets and evidence base presented within the Benthic Subtidal and Intertidal Ecology EIA chapter, and Marine Water and Sediment Quality chapter to be submitted with the consent applications, supplemented, where relevant, by additional publicly available and site-specific information for the HPMA and surrounding area.
- 7.4.3.2 Given that primary producers will not be specifically characterised within the Benthic Subtidal and Intertidal Ecology chapter, they will be considered at a broad ecosystem level, with a particular focus on phytoplankton communities and the role of primary productivity in supporting food-web structure and ecosystem processes within the HPMA.

7.4.4 Fish and Shellfish Ecology and Supporting Prey Resources

- 7.4.4.1 The baseline characterisation for fish and shellfish ecology, inclusive of forage fish species, will draw on publicly available and site-specific information for the HPMA and surrounding area, supplemented by the data sources, survey datasets and evidence base presented within the Fish and Shellfish Ecology EIA chapter, to be submitted with the consent applications. The baseline characterisation will also draw upon available evidence relating to the ecological functioning of the HPMA and the wider regional marine ecosystem.
- 7.4.4.2 The HPMA baseline characterisation will place greater emphasis on ecosystem processes and the role of fish and shellfish receptors in supporting ecosystem functioning. Consideration will be given to the ecological role of key species, including forage fish (such as herring, sprat, sandeel and European smelt), prey resources, migratory fish utilising the HPMA as a migration route or transit corridor, and key species contribution to ecosystem connectivity, trophic interactions and energy transfer within the HPMA and wider regional ecosystem.

7.4.5 Ornithology

- 7.4.5.1 The baseline characterisation for ornithology will utilise the publicly available and site-specific information for the HPMA, such as JNCC and NE's 'Annex H. Ecological narratives: Supplementary documentation on the ecological merit of the candidate Highly Protected Marine Areas in English waters' (2022a). This will be supplemented with relevant information from the data sources, survey datasets and evidence base presented within the Marine Ornithology EIA chapter to be submitted with the consent applications.

7.4.6 Marine Mammals and Megafauna

- 7.4.6.1 The baseline characterisation for marine mammals and megafauna will draw on publicly available and site-specific information for the HPMA and surrounding area, supplemented by the data sources, survey datasets and evidence base presented within the Marine Mammals EIA chapter to be submitted with the consent applications. Consideration will be given to marine mammals and

megafauna species that utilise the HPMA for foraging, movement and wider habitat connectivity, and their role in maintaining food-web structure, ecosystem connectivity and broader ecosystem processes within the HPMA and wider regional ecosystem.

7.5 Step 2: Ecosystem Level Impact Assessment

- 7.5.1.1 The screening approach for the HPMA ecosystem level assessment followed a receptor based approach [see **Section 5.1**] reflecting the principal ecological components represented within the North East of Farnes Deep HPMA which may be impacted by the MHPGC Project and this provides an appropriate basis for identifying sites with the potential to interact with the MHPGC Project and potential pathways for effect. However, the assessment will adopt an ecosystem level approach, moving beyond the identification of individual impact pathways to consider the ecological significance of predicted changes within the wider HPMA ecosystem. The assessment will therefore examine not only direct effects on individual receptors, but also the extent to which those effects could influence ecological processes, trophic interactions, ecosystem functioning and the achievement of the HPMA conservation objectives.
- 7.5.1.2 The assessment will draw upon the outputs of the geological, geomorphological features and physical processes assessment, together with the relevant technical assessments presented within the ES, including benthic ecology, fish and shellfish ecology, marine mammals and ornithology. The assessment will consider the spatial extent, magnitude, duration and frequency of predicted changes and the extent to which such changes overlap with ecological receptors and ecosystem processes within the HPMA. Outputs from the numerical sediment plume modelling (**Physical processes modelling, provided in Volume 2, Annex 1.2: Model Design Validation and Results**) will be used to characterise the spatial and temporal extents of any potential changes to the physical environment arising from the MHPGC Project, including the generation of sediment plumes and sediment deposition. Outputs from the site-specific underwater noise modelling (**Volume 2, Annex 5.1: Underwater Sound Technical Report**) will also be used to characterise the potential impact ranges associated with the MHPGC Project activities. As the modelling has been undertaken using precautionary worst-case scenarios, it is considered sufficiently conservative to inform the ecosystem-level impact assessment.
- 7.5.1.3 For benthic ecology and primary producers, the assessment will consider the potential for temporary increases in SSCs, reductions in light penetration, sediment deposition and changes in sediment characteristics to affect habitat condition, habitat suitability, community composition, primary productivity and ecosystem functioning. Outputs from the high-resolution sediment transport and sediment plume modelling described in **Section 7.4.2** will be used to evaluate the spatial and temporal overlap between predicted environmental changes and sensitive habitats, communities and ecological processes.
- 7.5.1.4 For fish and shellfish ecology and supporting prey resources, the assessment will consider the potential for changes to the physical and acoustic environment to affect fish and shellfish populations, including species that are important in supporting wider ecosystem functioning within the HPMA. Consideration will be given to the potential for effects on migration, spawning activity, recruitment processes, foraging behaviour and the use of nursery, feeding and supporting habitats, where appropriate. The assessment will also consider how changes to benthic habitats and prey availability may influence fish and shellfish communities, and consequently their role in supporting trophic interactions and ecosystem functioning within the wider HPMA ecosystem. Outputs from the sediment transport and plume modelling and site-specific underwater noise modelling will be used to evaluate the spatial and temporal overlap between predicted MHPGC Project-related changes and sensitive fish and shellfish receptors, habitats and ecological processes.
- 7.5.1.5 For marine mammals, megafauna and seabirds, the assessment will consider the potential for disturbance from underwater noise, vessel activity and other relevant project activities. In addition to direct effects, the assessment will evaluate whether changes to prey availability, habitat quality or other supporting ecosystem functions could give rise to indirect effects on these receptors. Outputs from the site-specific underwater noise modelling will be used to evaluate the spatial and temporal overlap between predicted MHPGC Project-related underwater noise and sensitive marine mammal receptors.

- 7.5.1.6 The assessment will evaluate the sensitivity of ecosystem processes to predicted environmental changes, taking account of natural variability, and resilience and recovery potential of species and habitats that contribute to the integrity of the HPMA. Particular consideration will be given to ecological linkages between receptor groups and the extent to which effects on one component of the ecosystem may have implications for other receptors or broader ecosystem functioning. For example, changes affecting prey species or primary productivity will be considered in the context of their potential implications for higher trophic levels and ecosystem resilience.
- 7.5.1.7 The assessment will determine whether predicted environmental changes, either alone or in combination with other plans and projects, have the potential to result in ecologically meaningful effects on the functioning of the HPMA ecosystem or the achievement of the HPMA conservation objectives.

7.6 Step 3: Cumulative and In-Combination Effects

- 7.6.1.1 A key principle of the ecosystem level approach is the recognition that pressures do not act independently. The assessment will therefore consider the potential for cumulative and in-combination effects arising from multiple project pressures acting concurrently, as well as in combination with other relevant plans, projects and activities. Consideration will be given to additive, synergistic and antagonistic interactions where these have the potential to influence the magnitude, spatial extent, duration or ecological significance of predicted effects. The assessment will evaluate whether such interactions could affect ecosystem functioning or the achievement of the HPMA conservation objectives.

7.7 Step 4: Changing Baseline and Future Trends

- 7.7.1.1 Given the long-term recovery ambitions of HPMAs, it is also important to understand how the ecosystem is expected to change over time in the absence of a project. This means considering ongoing recovery, climate change, species redistribution and other environmental trends, so that the assessment of project effects is against the trajectory the ecosystem is intended to follow
- 7.7.1.2 Ultimately, the assessment approach will provide a transparent line of evidence from project pressures through ecological pathways to the conservation objectives, demonstrating whether the MHPGC Project could impede ecosystem recovery or the achievement of Good Environmental Status within the HPMA.
- 7.7.1.3 The assessment will also consider the wider impacts that the ecosystem is facing, highlight a changing baseline, and consider the future trends across key trophic levels.

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