

Draft Updated Sectoral Marine Plan for Offshore Wind Energy: Nature Conservation Marine Protected Area Assessment

Report commissioned by the Scottish Government

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Draft Updated Sectoral Marine Plan for Offshore Wind Energy

Nature Conservation Marine Protected Area Assessment

Report prepared for the Scottish Government by



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Non-Technical Summary

A Nature Conservation Marine Protected Area (NCMPA) Assessment has been undertaken of the updated Sectoral Marine Plan for Offshore Wind Energy (SMP-OWE) (referred to as the Draft Plan). This report has been prepared as best practice and provides Scottish Ministers with the information to support their duties in relation to Marine Protected Areas (MPAs) in Scottish inshore (territorial) and offshore waters.

The NCMPA Assessment of the Draft Plan has been undertaken as a high-level desk-based assessment, reflecting the broad and national scope of the Draft Plan, and has been based on the best available evidence, drawing on a range of sources and data. This strategic plan level assessment is based upon understanding of projects and evidence sources at the time of assessment (September - December 2024). More detailed project level assessments will be undertaken for consenting purposes, where further evidence and refinement of project details may be available. The outcomes of the assessment have been reported in individual assessment tables for each NCMPA screened into the assessment. These individual assessment tables ensure a transparent and consistent process is followed, and a clear audit is provided of the conclusions for each site.

Based on the findings of the SEA, and in consultation with NatureScot and JNCC, none of the 23 inshore NCMPAs located in Scottish waters are screened into the assessment and four of the 13 offshore NCMPAs are screened into the assessment. The NCMPAs that have been screened into the assessment are as follows:

- Norwegian Boundary Sediment Plain NCMPA;
- Turbot Bank NCMPA;
- Firth of Forth Banks Complex NCMPA; and
- East of Gannet and Montrose Fields NCMPA.

An assessment of the impacts of the Draft Plan activities on each of these NCMPAs and protected features both alone and in-combination with others plans and projects has been undertaken, taking account of the relevant conservation objectives and management advice for these features.

Provided that the project level mitigation measures identified as necessary are secured and implemented, the Draft Plan activities will not significantly hinder the achievement of the conservation objectives of Turbot Bank NCMPA and Firth of Forth Banks Complex NCMPA. The Draft Plan activities have the potential to significantly hinder the achievement of the conservation objectives of Norwegian Boundary Sediment Plain NCMPA and East of Gannet and Montrose Fields NCMPA. This is because it is considered unlikely or not possible to avoid the protected features.

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1 Introduction

1.1 The Updated Sectoral Marine Plan for Offshore Wind Energy (SMP-OWE)

- 1.1.1 The Scottish Government has undertaken a sectoral marine planning process to produce the Updated Sectoral Marine Plan for Offshore Wind Energy (SMP-OWE) (also referred to as the Draft Plan). The purpose of the Draft Plan is to enable the sustainable development of offshore wind energy in Scottish waters, by balancing economic, social, and environmental objectives through a systems-led assessment process that engages a range of stakeholders and is underpinned by evidence. Information on the wider objectives and aims of the plan, its policy context, further background and information on the sectoral marine planning process is presented in the [Draft Plan document](#) itself.
- 1.1.2 The geographical scope of the Draft Plan covers Scottish Waters (0 - 200 nautical miles (NM)). This includes Scottish Territorial Waters (0 - 12 NM) and the Scottish offshore region (12 - 200 NM).
- 1.1.3 There are 32 OAs proposed for potential development of offshore wind across five regions. In addition, the Draft Plan includes a high-level consideration of providing additional T&D capacity of up to 1 GW, divided equally across the five Scottish regions. The inclusion of consideration for T&D aids in future-proofing the Plan in order to avoid further iterations. It does not constitute a new seabed leasing round but recognises that there may be a need for additional testing for floating technology (inshore and offshore) until the technology matures on an ad hoc basis to be considered by Crown Estate Scotland (CES) based on levels of demand. A high-level assessment of impact of these projects has been undertaken as part of the development of the Draft Plan.
- 1.1.4 In terms of T&D parameters, no more than a total of 1 GW of installed capacity for T&D projects should be leased. This capacity should be equally split between the five regions outlined in the Draft Plan (West, North, Shetland, North East, and East), with no more than 200 MW leased per region. Any project will be subject to CES leasing processes as well as usual consenting and licensing requirements. Sites are likely to be relatively small (no larger than 100 MW of potential generation capacity) with a clear purpose of T&D¹. They should not be located in an existing OA or in a Marine Protected Area (MPA).

¹ Such as research on components or whole turbine technology in an at sea environment, testing of technology types; or certification of offshore wind infrastructure.

- 1.1.5 With regards to cables, strategic planning of the transmission infrastructure required to support the Draft Plan (i.e. offshore transmission infrastructure components, subsea transmission cables, landfall and transition pit, and onshore substations) will be delivered by the National Energy System Operator (NESO). NESO is undertaking an SEA, HRA and NCMPA Assessment of the Offshore Transmission Network Review and Holistic Network Design (HND)² and HND Follow Up Exercise (HND-FUE)³. NESO's plan encompasses the transmission infrastructure required for most of the OAs. Whilst export cables and associated infrastructure do not form part of the Draft Plan, a high level assessment of the potential impacts associated with cables is encompassed in the supporting assessments. Cable routes for individual developments are considered in more detail at the project-level development and consenting stage.
- 1.1.6 The Draft Plan has been appraised through a [Strategic Environmental Assessment \(SEA\)](#), [Habitats Regulations Appraisal Appropriate Assessment Information Report \(HRA AAIR\)](#), [Socio-Economic Impact Assessment \(SEIA\)](#) and a Nature Conservation Marine Protected Area (NCMPA) Assessment. [Regional Location Guidance \(RLG\)](#) has also been developed, reported separately, which provides the current (baseline) for the topics covered in the SEA, HRA AAIR, SEIA and NCMPA Assessment.
- 1.1.7 The assessments and RLG have been developed based on understanding of projects and evidence sources at the time of assessment (September - December 2024). Together, these assessments have considered strategic social, economic and environmental effects of each draft plan element, including possible development within the OAs covered by the Draft Plan, as well as assessing the potential effects on protected sites and features. The key findings of the SEA, HRA AAIR, SEIA and NCMPA assessment, are summarised in an overarching [Sustainability Appraisal \(SA\)](#) document.
- 1.1.8 OAs included in the Draft Plan and the intended installed capacities are shown in Table 1. Scottish waters have been separated into five regions for the purpose of the assessment of the Draft Plan RLG. These regions are: West; North; Shetland; North East; and East, as shown in Figure 1 which also shows the location of the OAs for the Draft Plan.

² NESO (2022) Pathway to 2030: [Holistic Network Design](#). National Grid Energy System Operator (accessed 17/01/2025)

³ NESO (2024) [Beyond 2030: A national blueprint for a decarbonised electricity system in Great Britain](#). National Energy System Operator (accessed 17/01/2025)

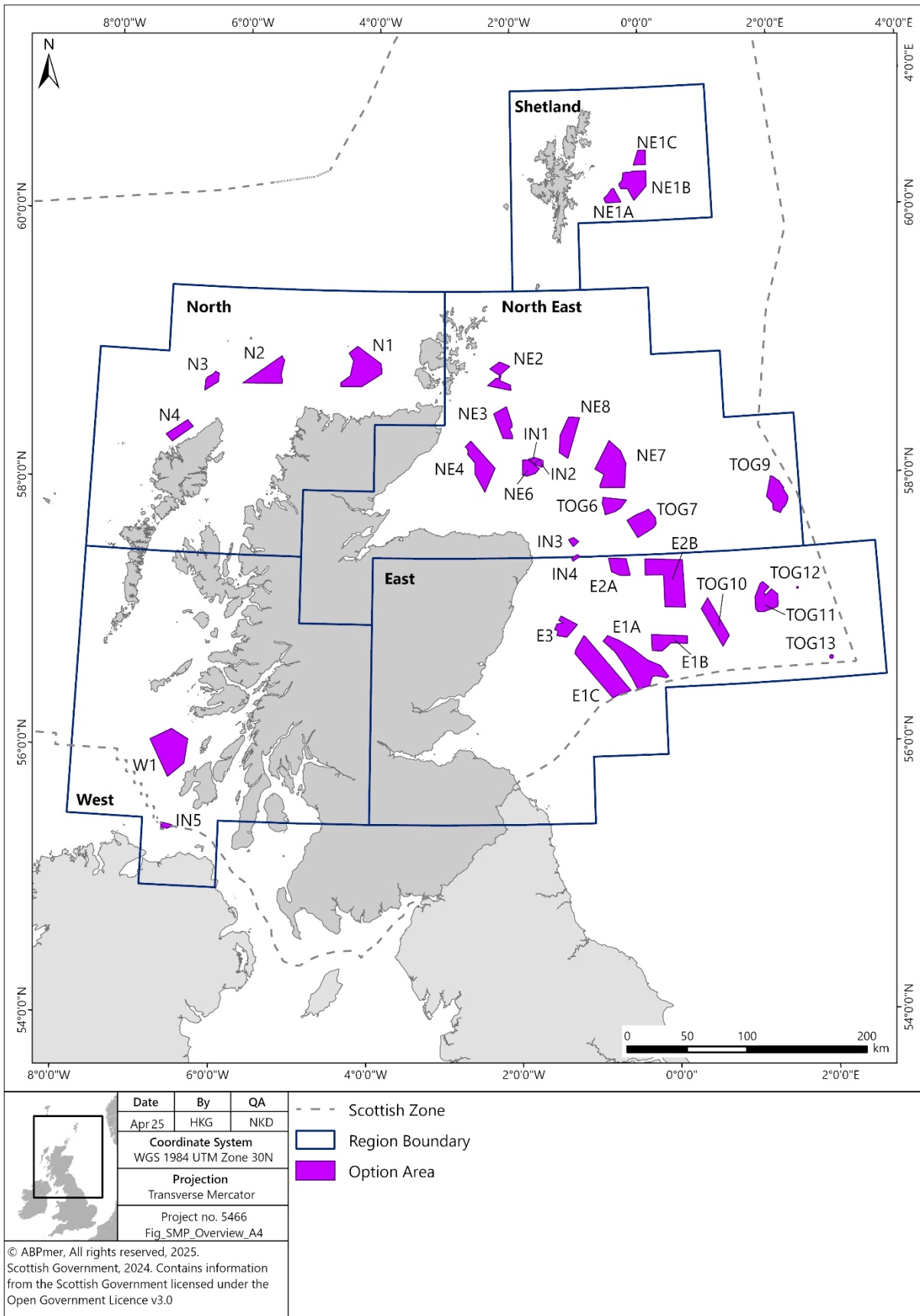
Table 1. Intended installed capacity (MW) within each Option Area.

Region	Draft Plan element	OA	Capacity (MW)*	km ²
West	ScotWind	W1	2,000	754
West	INTOG	IN5	100	31.37
West	T&D	NA	200	NA
North	ScotWind	N1	2,250	657
North	ScotWind	N2	1,500	390
North	ScotWind	N3	495	103
North	ScotWind	N4	900	161
North	INTOG	NA	NA	NA
North	T&D	NA	200	NA
Shetland	ScotWind	NE1A	500	100
Shetland	ScotWind	NE1B	1,800	360
Shetland	ScotWind	NE1C	500	100
Shetland	INTOG	NA	NA	NA
Shetland	T&D	NA	200	NA
North East	ScotWind	NE2	1,008	200
North East	ScotWind	NE3	1,500	256
North East	ScotWind	NE4	2,000	429
North East	ScotWind	NE6	900	134
North East	ScotWind	NE7	3,000	684
North East	ScotWind	NE8	960	330
North East	INTOG	IN1	99.45	33.06
North East	INTOG	IN2	99.45	25.24
North East	INTOG	IN3	100	33.34
North East	INTOG	TOG6	560	184.64
North East	INTOG	TOG7	1,008	333
North East	INTOG	TOG9	1,008	333
North East	T&D	NA	200	NA
East	ScotWind	E1A	3,600	859

Region	Draft Plan element	OA	Capacity (MW)*	km ²
East	ScotWind	E1B	1,200	280
East	ScotWind	E1C	2,907	859
East	ScotWind	E2A	1,000	200
East	ScotWind	E2B	2,000	860
East	ScotWind	E3	1,008	187
East	INTOG	IN4	50	16.67
East	INTOG	TOG10	1,008	333
East	INTOG	TOG11	1,350	332.9
East	INTOG	TOG12	3	2
East	INTOG	TOG13	15	8.1
East	T&D	NA	200	NA
National	ScotWind	Subtotal:	31,028	7,903
National	INTOG	Subtotal:	5,400.9	1,666.32
National	T&D	Subtotal:	1,000	NA
National	All of Draft Plan	Total	37,428.9	9,569.32

* Equivalent to central scenario

Figure 1. Map of Option Areas for the Draft Plan



1.2 Plan Development Process

- 1.2.1 The Draft Plan has been developed based on Scottish Government's established process for developing sectoral offshore energy plans. Figure 1 shows the location of the OAs for the Draft Plan. The Draft Plan is based on these areas and then tested and shaped (if need be) by the assessments and ultimately the consultation with statutory consultees and the public.
- 1.2.2 The identification of the areas in Figure 1 followed an analysis of opportunities and constraints, and refinement of areas following assessment, stakeholder feedback and leasing. The SMP-OWE 2020⁴, identified 15 Plan Option areas and assessed the potential impacts of an assumed development scenario of 10 GW. The leasing process, managed by CES, and known as ScotWind, announced in January 2022 the awarding of Option Agreements to 17 projects within the Plan Options, with a capacity of 24.8 GW⁵. A clearing round subsequently awarded a further three projects in August 2022, with a capacity of 2.8 GW, leading to a total intended installed capacity of 27.6 GW across all projects⁶. INTOG OAs were defined through a leasing round which required targeted oil and gas decarbonisation projects to be located within certain areas and innovation projects to be located outside of exclusion areas⁷.
- 1.2.3 The SMP-OWE 2020 incorporated an Iterative Plan Review (IPR) process which promotes consideration of new evidence and continuous improvement. In 2022, Scottish Ministers agreed that the conclusions of the SMP-OWE 2020 were likely to be affected by the results of the ScotWind leasing process and that therefore the Plan should be re-assessed under the IPR process.

1.3 Purpose of Document

- 1.3.1 An NCMPA Assessment has been undertaken of the updated Draft Plan activities to assess their potential impact on NCMPAs and their protected features.

⁴ Scottish Government (2020). [Sectoral Marine Plan for Offshore Wind Energy](#) (accessed 24/03/2025).

⁵ Crown Estate (2022). ScotWind offshore wind leasing delivers major boost to Scotland's net zero aspirations . 17 January 2022. Available at: [ScotWind offshore wind leasing delivers major boost to Scotland's net zero aspirations | Crown Estate Scotland](#) (accessed 24/03/2025)

⁶ Crown Estate (2022). Three ScotWind Clearing project agreements confirmed [online] Available at: [Three ScotWind clearing project agreements confirmed | Crown Estate Scotland](#) (accessed 24/03/2025)

⁷ Scottish Government (2022). [Sectoral marine plan - offshore wind for innovation and targeted oil and gas decarbonisation: initial plan framework](#) (accessed 24/03/2025).

- 1.3.2 Offshore Wind Directorate (OWD) has commissioned ABP Marine Environmental Research Ltd. (ABPmer) to undertake an NCMPA Assessment for the Draft Plan and to prepare this report presenting the outputs of the assessment.
- 1.3.3 This report has been prepared as best practice and provides Scottish Ministers with the information on the potential impacts of offshore wind development on NCMPAs.

1.4 Marine Protected Areas

- 1.4.1 The Marine (Scotland) Act 2010⁸ and the Marine and Coastal Access Act 2009⁹ gives Scottish Ministers powers to designate Marine Protected Areas (MPAs) in Scottish inshore and offshore waters, respectively¹⁰. To inform this process, the Scottish MPA Project was established to ensure MPAs are designated in the most appropriate locations for their particular objectives. NatureScot is responsible for providing advice on NCMPAs in Scottish inshore waters, and JNCC is responsible for providing conservation advice on offshore MPAs in the offshore environment of the UK¹¹. There are currently 36 NCMPAs located within Scotland's seas, 13 of which are offshore¹².
- 1.4.2 NCMPAs help protect rare, representative, and productive species and habitats in Scottish waters such as maerl beds, coral gardens, and common skate, as well as significant geodiversity features¹³. In addition to fulfilling statutory conservation obligations under both the Marine (Scotland) Act 2010 and the UK Marine and Coastal Access Act 2009, inshore and offshore NCMPAs also form part of the wider OSPAR network of MPAs that are found across the North East Atlantic¹⁴.

⁸ Marine (Scotland) Act [online] Available at: [Marine \(Scotland\) Act 2010](#) (accessed 20/11/2024)

⁹ Marine and Coastal Access Act 2009 [online] Available at: [Marine and Coastal Access Act 2009](#) (accessed 20/11/2024)

¹⁰ NatureScot (2022). Scotland's Marine Protected Area network [online] Available at: [Scotland's Marine Protected Area network | NatureScot](#) (accessed 20/11/2024)

¹¹ SNH/JNCC (2012) Commissioned Report No. 547: Advice to the Scottish Government on the selection of Nature Conservation Marine Protected Areas (MPAs) for the development of the Scottish MPA network [online] Available at: [Nature Conservation MPAs | JNCC - Adviser to Government on Nature Conservation](#) (accessed 20/11/2024)

¹² JNCC (2019) Nature Conservation Marine Protected Areas [online] Available at: [Nature Conservation MPAs | JNCC - Adviser to Government on Nature Conservation](#) (accessed 20/11/2024)

¹³ JNCC (2019) Nature Conservation Marine Protected Areas [online] Available at: [Nature Conservation MPAs | JNCC - Adviser to Government on Nature Conservation](#) (accessed 20/11/2024)

¹⁴ OSPAR Commission (2022) Marine Protected Areas [online] Available at: [Marine Protected Areas | OSPAR Commission](#) (accessed 20/11/2024)

1.5 Report Structure

1.5.1 The remainder of this NCMPA Assessment is structured as follows:

- Section 2 presents the approach to the NCMPA Assessment;
- Section 3 sets out the results of the screening and assessment stages of the NCMPA Assessment; and
- Section 4 provides the summary and conclusions of the NCMPA Assessment.

2 NCMPA Assessment Method

2.1 Purpose of the Assessment

2.1.1 The purpose of this NCMPA Assessment is to assess the potential impact of Draft Plan activities on NCMPA and their protected features both alone and in-combination with other plans and projects, taking account of the relevant conservation objectives and management advice for these features.

2.2 Assessment methodology

2.2.1 The NCMPA Assessment of the Draft Plan has been undertaken as a high-level desk-based assessment, reflecting the broad and national scope of the Draft Plan.

2.2.2 The NCMPA Assessment has involved the following key steps:

1. Confirming which NCMPA and features are screened into the assessment based on outcomes of the SEA. NCMPA that have been identified in the SEA as either overlapping or adjacent to an OA and have the potential to be significantly affected by the Draft Plan activities are screened into the NCMPA Assessment (Section 3.1). NCMPA that are designated for mobile features located beyond the immediate vicinity of the OAs and in the wider area have not been screened into the NCMPA Assessment. The potential for these mobile features to be indirectly affected by the Draft Plan activities is assessed in the SEA.
2. Assessing the potential effects of development in the Draft Plan OAs against each protected feature that has been screened in, with reference to the conservation objectives and management advice for each of those features.
3. Determining the specific activities of the Draft Plan that could result in direct and/or indirect effects on protected features based on a review of their sensitivities to those potential effects using best available evidence as set out below.
4. Identifying if there is a significant risk of hindering the achievement of the conservation objectives of protected features within an NCMPA and considering any mitigation that would need to be adopted to avoid significant adverse effects.
5. Assessing the potential for in-combination effects with other plans and projects and considering if any further mitigation

that would need to be adopted to avoid significant adverse effects.

- 2.2.3 The outcomes of the above steps have been reported in individual assessment tables for each NCMPA screened into the assessment. These individual assessment tables ensure a transparent and consistent process is followed, and a clear audit is provided of the conclusions for each site.
- 2.2.4 The assessment has been largely qualitative but has also undertaken as much site-specific spatial analysis in Geographic Information System (GIS) and quantification of effects as is possible depending on the level of information that was available from individual projects within the OAs at the time of the assessment.
- 2.2.5 The assessment has been undertaken using the best available evidence, drawing on a range of sources and data, including:
- Relevant MPA conservation advice documents from SNCBs¹⁵;
 - Relevant spatial data on ongoing/operational activities and structures, and MPA features from Scottish Government's National Marine Plan Interactive (NMPi);
 - Relevant spatial data on MPA features on JNCC's MPA Mapper¹⁶ and Geodatabase of Marine features adjacent to Scotland (GeMS);
 - Relevant spatial data on seabed habitats on the latest version of the European Marine Observation and Data Network (EMODnet) broadscale seabed habitat map;
 - Pressures associated with marine activities and feature sensitivity to these pressures on the Feature Activity Sensitivity Tool (FeAST)¹⁷, JNCC's Marine Pressure-Activities Database (PAD)¹⁸ and Marine Evidence based Sensitivity Assessment (MarESA)¹⁹, which has been used to complement information available in MPA conservation advice documents;
 - General findings from available EIAs of offshore wind development projects; including EIA Scoping Reports and EIA Reports (EIARs) associated with OAs, and any new technology being proposed; and

¹⁵ JNCC (2019) Conserving Marine Protected Areas [online] Available at: [Conserving Marine Protected Areas | JNCC - Adviser to Government on Nature Conservation](#) (accessed 01/10/2024)

¹⁶ JNCC (2024) MPA Mapper [online] Available at: [MPA Mapper | JNCC - Adviser to Government on Nature Conservation](#) (accessed 01/10/2024)

¹⁷ NatureScot (2024) Feature Activity Sensitivity Tool (FeAST) [online] Available at: [Feature Activity Sensitivity Tool \(FeAST\) | NatureScot](#) (accessed 01/10/2024)

¹⁸ JNCC (2022) Marine Pressures-Activities Database (PAD) v1.5 2022. [online] Available at: [Marine Pressures-Activities Database \(PAD\) v1.5 | JNCC Resource Hub](#) (accessed 01/10/2024)

¹⁹ MarLIN (2023) Marine Evidence based Sensitivity Assessment (MarESA) – summary [online] Available at: [Marine Evidence based Sensitivity Assessment \(MarESA\) - summary - MarLIN - The Marine Life Information Network](#) (accessed 01/10/2024)

- Any information provided by developers following a targeted Call for Evidence carried out by Scottish Government in 2022.

2.2.6 The type and magnitude of potential effects to protected features which might arise as a result of the Draft Plan activities have been evaluated through the application of judgement informed by the indicative assessment criteria set out in Table 2. The criteria include consideration of the exposure to change in terms of the spatial scale (size/number), intensity (level/magnitude), and temporal scale (duration/frequency) of pressures. The criteria also consider the sensitivity and tolerance of features to pressures based on a review of the best available evidence as noted above (i.e., MPA conservation advice documents, FeAST, PAD and MarESA). The specific evidence underpinning the review of sensitivity of protected features for each NCMPA screened into the assessment is set out in Part B of the individual assessment tables included in Section 3.2. These criteria have been applied at the assessment stage (i.e., Part D onwards in the individual assessment tables included in Section 3.2). These criteria are necessarily indicative rather than prescriptive.

2.2.7 Moderate and major effects are considered to represent a significant risk of hindering the achievement of conservation objectives whereas minor and negligible effects are not considered to represent a significant risk. Judgement is used to balance where partial criteria for a magnitude level is met or where there is uncertainty, taking account of the precautionary principle as discussed in Section 2.3.

Table 2. Indicative criteria applied to assessment of significance

Risk of hindering conservation objectives	Magnitude of potential effects	Indicative criteria
Significant risk	Major	Large spatial scale (size/number); Major intensity (level/magnitude); Long-term (duration/frequency); High sensitivity of features; and/or Low tolerance of features.
Significant risk	Moderate	Medium spatial scale; Moderate intensity; Medium-term; Moderate sensitivity of features; and/or Moderate tolerance of features.
No significant risk	Minor	Small spatial scale; Low intensity; Short-term;

Risk of hindering conservation objectives	Magnitude of potential effects	Indicative criteria
		Low sensitivity of features; and/or High tolerance of features.
No significant risk	Negligible	There is likely to be a change, but the level will be indiscernible from baseline conditions; Features are not sensitive; Features are tolerant.

2.3 Assumptions, Data Gaps and Limitations

- 2.3.1 The Draft Plan has a relatively broad spatial scope and a long-term temporal component which can influence the type and magnitude (significance) of potential environmental impacts. Technological advances that take place over time with respect to wind energy developments and the needs for future upgrading of wind generating technologies in established areas will also influence the potential effects on the environment.
- 2.3.2 As detailed in Section 2.2, the most recent and up to date information available has informed the assessment. This has provided a reasonable degree of certainty on the level of development to be progressed under the Draft Plan (i.e. capacity). However, most of the projects under the Draft Plan will still need to secure other relevant consents and full lease before commencing construction. Thus, a degree of uncertainty will remain regarding which projects will proceed to completion, the detail of final designs, the maximum scale of development, timing of development, foundation type etc.
- 2.3.3 The precautionary principle is applied to prevent potential environmental damage when there is scientific uncertainty about the risks. According to the statutory guidance provided by the Scottish Government, decision-makers must apply the precautionary principle when there is a good reason to believe that serious or irreversible environmental damage could occur, even if there is a lack of scientific certainty about the consequences²⁰.
- 2.3.4 Given the above, a precautionary approach has been taken wherever uncertainty key to the assessment remains. Mindful of the precautionary approach, reasonable assumptions have been made to assess potential environmental effects. These include:

²⁰ Scottish Government (2023). Scotland's Guiding Principles on the Environment: Statutory Guidance Prepared under section 17 of the UK Withdrawal from the European Union (Continuity) (Scotland) Act 2021 [online] Available at: [Supporting documents - Environment - guiding principles: statutory guidance - gov.scot](#) (accessed 01/10/2024)

- **Assessment period** – The impacts were assessed over a 50-year period, from 2025 to 2074. This ensured that the assessment covered the likely period of construction of projects (expected from the mid-2020s to the 2030s) and for a period of at least 30 years thereafter. It was assumed sites are repowered after 25 years rather than decommissioned;
- **Timing of development** – The timing of possible development within individual OAs is uncertain. Recognising uncertainty in timings and where this may occur, it has been assumed that multiple developments may happen at once in any given region (West, North, Shetland, North East, East);
- **Technology** – Available information on technology type was used in all assessments (see Section 2.2). Where assumptions were required due to lack of project details (e.g. turbine size, blade tip/airgap, foundation type, footprint, construction methods), a worst-case scenario (or envelope) was applied against each of the relevant receptors. In terms of NCMPA Assessment, this worst-case envelope has assumed that turbines directly overlap any protected features recorded within OA and turbines are located as close as possible to protected features recorded outside the OA (i.e., along the edge of the OA closest to that protected feature);
- **Spatial footprint** – Information on the total area of the individual OAs was used and assumed to be fixed. As noted in Section 1.1, the Draft Plan will allow for and enable a number of sites for the purposes of T&D, up to a total of 1,000 MW generating capacity across Scottish waters. Following agreement with OWD, it has been assumed that this capacity is equally divided across all five regions (West, North, Shetland, North East, East) of the Draft Plan, resulting in 200 MW generating capacity in each region, and that each T&D project is limited to 100 MW of potential generation capacity. T&D projects will not be located in a NCMPA. It is also assumed that these projects are more likely to be located ‘inshore’ as opposed to ‘offshore’, given their purpose; and will utilise existing cable infrastructure, where available. The Draft Plan however does not exclude the development of T&D projects offshore. Due to their temporary nature, infrastructure should be removed once testing and demonstration operations have completed; and
- **Capacity** – A consistent set of lower, central and higher development scenarios in terms of development capacities (GW) for the Draft Plan have been considered across the SEA, HRA AAIR, SEIA and NCMPA Assessment. There is still some uncertainty over the maximum scale of development, timing of development, and whether all projects will proceed to completion. It is possible that development will not proceed in every OA and some locations will be taken forward while others may not be progressed. To reflect this uncertainty, lower, central and higher scenarios are used. The higher scenario is included for the purposes of stress-testing the Draft Plan. The NCMPA Assessment has focused on assessing the environmental effects of the

central scenario. The central scenario is representative of the intended installed capacity and has been based on original Lease Option Agreements with CES and updated where developers have publicly declared changes in capacities. Given that the Draft Plan activities have the potential to significantly hinder the achievement of conservation objectives, a higher scenario has not been assessed. A lower scenario has not been assessed as the NCMPA Assessment process takes a necessarily precautionary approach by assuming a worst case for development within each OA. For example, even if a lower scenario may provide a reduced utilisation of an OA, it is assumed under a worst-case that turbines would still be located along the closest edge of the OA to a given protected feature. Therefore, the conclusions of the NCMPA Assessment would remain the same for both the central and lower scenarios. This is the same approach that has been applied to the HRA AAIR.

- 2.3.5 Other key assumptions, data gaps and limitations are set out in the following sections.

Understanding of Scotland's Marine Environment

- 2.3.6 Whilst a great deal of research has been undertaken on Scotland's marine and coastal environments through public bodies, and by academic institutions and the offshore wind sector, it is widely acknowledged that significant data gaps remain in the understanding of the current and future marine environment. For example, the spatial and temporal distributions of some protected features, in particular mobile features, are not fully characterised.

Consideration of Cables

- 2.3.7 A generic assessment of the potential impacts associated with the intra-array cabling and possible offshore substation connections has been included in the individual assessment tables for each of the NCMPAs screened into the assessment (Section 3.2).
- 2.3.8 Targeted Oil & Gas (TOG) projects will include some smaller radial connections to offshore installations for which they are supplying power to. These are private wire arrangements. The size of these cable connections and/or the location of the offshore installations they intend to supply to are potentially unknown at this early stage. However, a generic high-level narrative on the likely potential impacts of these radial connections has been included within the relevant individual assessment tables (Section 3.2).
- 2.3.9 Strategic planning of the transmission infrastructure required to support the Draft Plan (i.e. offshore transmission infrastructure components, subsea transmission cables, landfall and transition pit, and onshore substations) will

be delivered by the National Energy System Operator (NESO). The potential effects of this transmission infrastructure have therefore been assessed as part of the in-combination effects assessment of other plans and projects in Part G of the individual assessment tables (Section 3.2).

Consideration of Supporting Activities

- 2.3.10 There remains a degree of uncertainty surrounding the potential effects of some supporting activities as a result of the precise location of activities being unknown, for example, the location of any dredging that might be required to provide fill for gravity base foundations. The potential environmental effects of these activities have been identified through a review of available project level assessments.

In-combination Assessment

- 2.3.11 Assessments of in-combination effects present significant methodological challenges owing to limitations of data availability from other plans and projects, and uncertainties in the manner in which the OAs will be developed.
- 2.3.12 Other plans or projects are defined as those which might reasonably interact with the effects that might arise from the Draft Plan, such as the proposed management measures in offshore MPAs²¹. The in-combination assessment has been necessarily at a high level, drawing on the plan and project level assessments of other plans and projects, rather than carrying out a bespoke analysis that considers all plans and projects together in one assessment.

²¹ Scottish Government (2024). Fisheries management measures within Scottish Offshore Marine Protected Areas (MPAs): consultation. Available at: [Fisheries management measures within Scottish Offshore Marine Protected Areas \(MPAs\): consultation - gov.scot](#) (accessed 01/10/2024)

3 Results of NCMPA Assessment

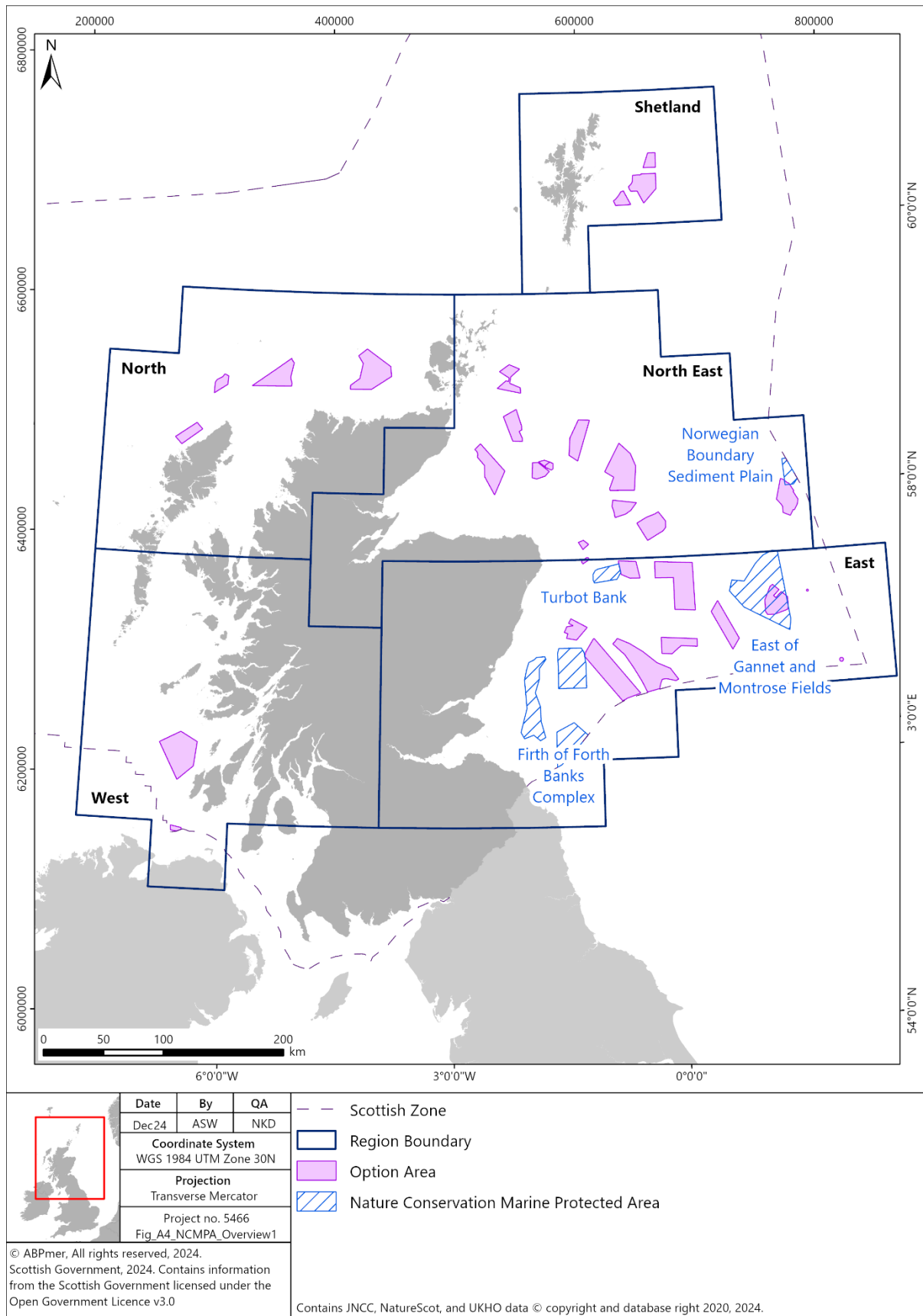
3.1 Screening results

3.1.1 Based on the findings of the SEA, and in consultation with NatureScot and JNCC, none of the 23 inshore NCMPAs located in Scottish waters are screened into the assessment and four of the 13 offshore NCMPAs are screened into the assessment. The NCMPAs and protected features that have been screened into the assessment are set out in Table 3. These sites are shown on Figure 2.

Table 3. NCMPAs and features screened into assessment

NCMPA	Protected Features	Feature Type	Reasoning
Norwegian Boundary Sediment Plain NCMPA	Ocean quahog aggregations (including sands and gravels as their supporting habitat)	Low or limited mobility species	Site partially overlaps OA (TOG9).
Turbot Bank NCMPA	Sandeels	Mobile species	Site is located adjacent to OA (E2A).
Firth of Forth Banks Complex NCMPA	Ocean quahog aggregations	Low or limited mobility species	Site is located adjacent to OA (E1C).
Firth of Forth Banks Complex NCMPA	Offshore subtidal sands and gravels	Habitat	Site is located adjacent to OA (E1C).
Firth of Forth Banks Complex NCMPA	Shelf banks and mounds	Large scale feature	Site is located adjacent to OA (E1C).
Firth of Forth Banks Complex NCMPA	Moraines representative of the Wee Bankie Key Geodiversity Area	Geomorphological	Site is located adjacent to OA (E1C).
East of Gannet and Montrose Fields NCMPA	Offshore deep sea muds	Habitat	OA (TOG11) is located within site.
East of Gannet and Montrose Fields NCMPA	Ocean quahog aggregations (including sands and gravels as their supporting habitat)	Low or limited mobility species	OA (TOG11) is located within site.

Figure 2. Nature Conservation Marine Protected Areas screened into Nature Conservation Marine Protected Area Assessment



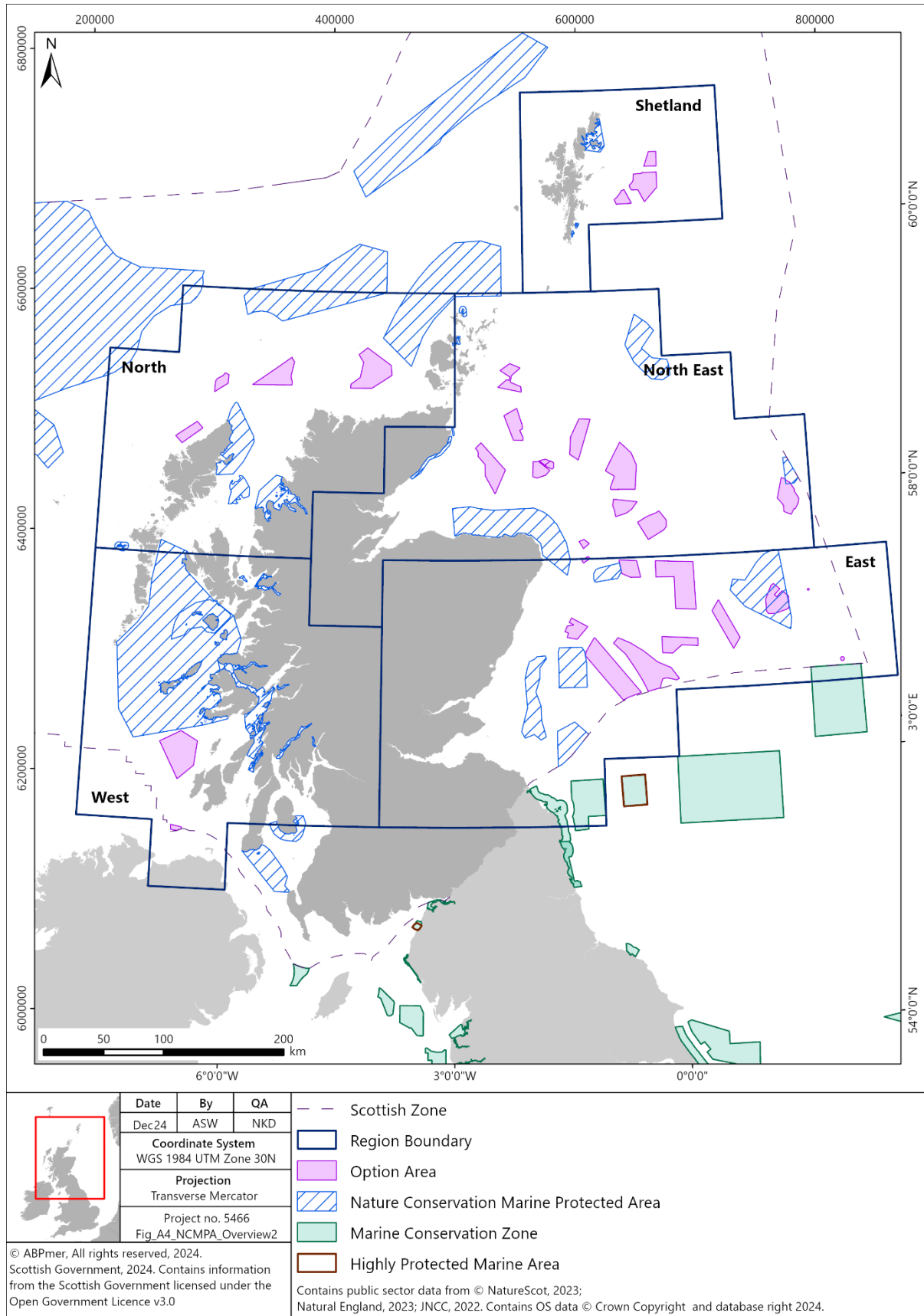
3.1.2 NCMPAs that are designated for mobile features and have the potential to be indirectly affected by the Draft Plan have been assessed in the SEA. These include the following:

- Sea of Hebrides NCMPA which is designated for minke whale and basking shark;
- North-west Orkney NCMPA which is designated for sandeel;
- North East Lewis NCMPA which is designated for Risso's dolphin and sandeel; and
- Southern Trench NCMPA which is designated for minke whale.

3.1.3 Although T&D projects will be relatively small-scale (up to 100 MW) and not located within an NCMPA (Section 2.3), their exact spatial location is not known. Due to the lack of spatial information, it is not possible at a plan level to reasonably predict the potential effects of T&D projects and their export cable routes on protected features of NCMPAs. It is therefore recognised that a project level NCMPA Assessment will be required for any T&D projects and associated export cable routes that have the potential to directly or indirectly affect protected features of NCMPAs.

3.1.4 There are a number of English Marine Conservation Zones (MCZs) and Highly Protected Marine Areas (HPMAs) that are located in northwestern and northeastern English waters as shown in Figure 3.

Figure 3. Location of Nature Conservation Marine Protected Areas, Marine Conservation Zones and Highly Protected Marine Areas in relation to Option Areas



3.1.5 These English MCZs and HPMAs have all been screened out of the NCMPA Assessment for the following reasons:

- There is a lack of connectivity between any protected habitat features or sessile/limited-mobility species features of English MCZs (e.g. South Rigg MCZ and Fulmar MCZ) and the OAs;
- There is no need to consider mobile features of English HPMA beyond the boundary of the HPMA (e.g. Allonby Bay HPMA and North East of Farnes Deep HPMA) as they only “*form part of the protected feature when within the designated site*”^{22,23};
- There is a lack of connectivity between any English MCZs that are designated for mobile features given the distances between these sites and the OAs is more than 100 km. This is consistent with 100 km screening buffer around OAs that has been applied in the HRA AAIR for the Draft Plan. The nearest English MCZ which is designated for a mobile feature (Common Eider) is Berwick to St. Mary’s MCZ, and this site is more than 100 km from the nearest OA (E1C); and
- English MCZs that are designated for migratory fish have been screened out in line with the approach that has been followed in the HRA AAIR for the Draft Plan following advice received from NatureScot. This is due to the very limited evidence to apportion individual fish back to the relevant protected sites, making assessment at the plan level extremely uncertain. The SEA for the Draft Plan considers the potential effects on migratory fish (and other fish species). The nearest English MCZ which is designated for migratory fish (Smelt) is Solway Firth MCZ, and this site is located more than 200 km from the nearest OA (IN5).

3.2 Assessment results

3.2.1 The individual assessment tables in this section provide a record of the outcome of the assessment that has been undertaken of each of the NCMPAs and protected features screened into the assessment.

²² Defra (2023) Highly Protected Marine Areas: Allonby Bay [online] Available at: [Highly Protected Marine Areas: Allonby Bay - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/collections/highly-protected-marine-areas-allonby-bay) (accessed 15/10/2024)

²³ Defra (2023) Highly Protected Marine Areas: North East of Farnes Deep [online] Available at: [Highly Protected Marine Areas: North East of Farnes Deep - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/collections/highly-protected-marine-areas-north-east-of-farnes-deep) (accessed 15/10/2024)

Table 4. Nature Conservation Marine Protected Area Assessment table for Norwegian Boundary Sediment Plain Nature Conservation Marine Protected Area

Norwegian Boundary Sediment Plain NCMPA

Part A: General Site information																									
A1. Site Name	<p>Norwegian Boundary Sediment Plain NCMPA.</p> <p>Figure 4. Map of Norwegian Boundary Sediment Plain Nature Conservation Marine Protected Area and Option Area</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Date</th> <th>By</th> <th>QA</th> </tr> </thead> <tbody> <tr> <td>Dec 24</td> <td>ASW</td> <td>NKD</td> </tr> <tr> <th colspan="3">Coordinate System</th> </tr> <tr> <td colspan="3">WGS 1984 UTM Zone 30N</td> </tr> <tr> <th colspan="3">Projection</th> </tr> <tr> <td colspan="3">Transverse Mercator</td> </tr> <tr> <td colspan="3">Project No. 5466</td> </tr> <tr> <td colspan="3">Norwegian_Boundary_A5</td> </tr> </tbody> </table>	Date	By	QA	Dec 24	ASW	NKD	Coordinate System			WGS 1984 UTM Zone 30N			Projection			Transverse Mercator			Project No. 5466			Norwegian_Boundary_A5		
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Norwegian_Boundary_A5																									

	A map of the site and distribution of features is also available to view on MPA Mapper JNCC - Adviser to Government on Nature Conservation ²⁴ .
A2. Protected features	<ul style="list-style-type: none"> • Ocean quahog aggregations (including sands and gravels as their supporting habitat).
A3. Overarching Conservation Objectives and feature condition	<p>The Conservation Objectives for the Norwegian Boundary Sediment Plain NCMPA are that the protected features²⁵:</p> <ul style="list-style-type: none"> • so far as already in favourable condition, remain in such condition; and • so far as not already in favourable condition, be brought into such condition, and remain in such condition. <p>The current condition of the protected feature²⁶ is as follows:</p> <ul style="list-style-type: none"> • Ocean quahog aggregations (including sands and gravels as their supporting habitat) – Unfavourable.

²⁴ JNCC (undated) MPA Mapper [online] Available at: [MPA Mapper | JNCC - Adviser to Government on Nature Conservation](#) (accessed 01/11/2024).

²⁵ JNCC (2018) Conservation Objectives for Norwegian Boundary Sediment Plain Nature Conservation MPA [online] Available at: [Conservation objectives for Norwegian Boundary Sediment Plain NCMPA](#) (accessed 01/11/2024).

²⁶ JNCC (2020) Statements on Conservation Benefits, Condition & Conservation Measures for Norwegian Boundary Sediment Plain Nature Conservation MPA [online] Available at: [Norwegian Boundary Sediment Plain Nature Conservation MPA Conservation Advice Statements](#) (accessed 28/02/2025).

Part B: Sensitivity of protected features and summary of potential risk	
B1. Pressures that protected features are sensitive to	<p>With reference to Advice on Operations²⁷ and other relevant sources of information (e.g. FeAST²⁸, PAD²⁹, MarESA³⁰), the known pressures and feature sensitivities which are potentially of relevance to the Draft Plan activities are as follows:</p> <ul style="list-style-type: none"> • Abrasion/penetration/disturbance of the substrate on and below the surface of the seabed; • Habitat structure changes – removal of substratum (extraction); • Hydrocarbon & PAH contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC; • Physical change (to another seabed/sediment type); • Smothering and siltation rate changes (heavy); • Smothering and siltation rate changes (light); • Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals). Includes those priority substances listed in Annex II of Directive 2008/105/EC; • Transition elements & organo-metal (e.g. TBT) contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC; and • Water flow (tidal current) changes, including sediment transport considerations.

²⁷ JNCC (2018) Norwegian Boundary Sediment Plain MPA – Conservation Advice [online] Available at: [Norwegian Boundary Sediment Plain MPA – Conservation Advice | JNCC Resource Hub](#) (accessed 01/11/2024).

²⁸ Nature Scot (2024) Feature Activity Sensitivity Tool (FeAST) [online] Available at: [Feature Activity Sensitivity Tool \(FeAST\) | NatureScot](#) (accessed 01/11/2024).

²⁹ JNCC (2022) Marine Pressures-Activities Database (PAD) v1.5 [online] Available at: [Marine Pressures-Activities Database \(PAD\) v1.5 | JNCC Resource Hub](#) (accessed 01/11/2024).

³⁰ MarLIN (undated) Marine Evidence based Sensitivity Assessment (MarESA) – summary [online] Available at: [Marine Evidence based Sensitivity Assessment \(MarESA\) - summary - MarLIN - The Marine Life Information Network](#) (accessed 01/11/2024).

B2. Draft Plan related activities considered capable of affecting the protected features	<p>With reference to Advice on Operations³¹, the following generic activities associated with the Draft Plan are identified as capable of affecting protected features of the site:</p> <ul style="list-style-type: none"> • Offshore wind: Construction; • Offshore wind: Operation and maintenance; • Offshore wind: Decommissioning; • Power cable: Laying, burial and protection; • Power cable: Operation and maintenance; and • Power cable: Decommissioning.
B3. Other ongoing activities, threats and pressures which are relevant to the baseline conditions at the site	<p>With reference to Supplementary Advice on Conservation Objectives³², other ongoing/operational activities, or other threats/pressures, which are relevant to the prevailing environmental conditions against which the assessment has been undertaken are as follows:</p> <ul style="list-style-type: none"> • Oil and gas operations; • Pipelines; • Fishing activity (demersal trawling); and • Climate change.
Part C: Screening of potential effects	
C1. Potential effect mechanisms from activities and	<p>With reference to B1, the potential effect mechanisms from Draft Plan activities identified in B2 to protected features are as follows:</p>

³¹ JNCC (2018) Norwegian Boundary Sediment Plain MPA – Conservation Advice [online] Available at: [Norwegian Boundary Sediment Plain MPA – Conservation Advice | JNCC Resource Hub](#) (accessed 01/11/2024).

³² JNCC (2018) Supplementary Advice on Conservation Objectives for Norwegian Boundary Sediment Plain Nature Conservation MPA [online] Available at: [Supplementary Advice on Conservation Objectives for Norwegian Boundary Sediment Plain NCMPA](#) (accessed 01/11/2024).

preliminary screening assessment	Potential effect	Ocean quahog aggregations (including sands and gravels as their supporting habitat)
	Abrasion/penetration/disturbance of the substrate on and below the surface of the seabed	Y
	Habitat structure changes – removal of substratum (extraction)	Y
	Hydrocarbon & PAH contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC	Y
	Physical change (to another seabed/sediment type)	Y
	Smothering and siltation rate changes (heavy)	Y
	Smothering and siltation rate changes (light)	Y
	Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals). Includes those priority substances listed in Annex II of Directive 2008/105/EC	Y
	Transition elements & organo-metal (e.g. TBT) contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC	Y
	Water flow (tidal current) changes, including sediment transport considerations	Y
C2. Consider whether the achievement of conservation	<p>The risk to conservation objectives set out in A3 from the potential effects mechanisms identified in C1 has been evaluated taking account of:</p> <ul style="list-style-type: none"> i) the activities taking place; ii) the likelihood of them taking place in the location of the feature; and iii) the sensitivity of that feature to the impacts. 	

objectives will be hindered	Potential effect		Risk to conservation objectives	
			Ocean quahog aggregations (including sands and gravels as their supporting habitat)	
	<p>1. Abrasion/penetration/disturbance of the substrate on and below the surface of the seabed.</p> <p>This pressure is associated with Draft Plan activities such as compression of sediment (e.g. piling), moorings (chains), bed preparation, dredging and cable burial (ploughing or jetting).</p>		<p>Significant risk. Ocean quahog has a thick, solid and heavy shell but despite this is known to be vulnerable to physical abrasion. The damage to this species is related to their body size, with larger specimens being more affected than smaller ones. Ocean quahog are thought to have no resistance to the pressure and low resilience and hence a high sensitivity score is given.</p>	
	<p>2. Habitat structure changes – removal of substratum (extraction)</p> <p>This pressure is associated with Draft Plan activities such as dredging and seabed preparation.</p>		<p>Significant risk. Removal of the substratum would remove the entire population of this species in the area of removal and so ocean quahog are thought to have no tolerance to the pressure and a low recovery potential, hence a high sensitivity.</p>	
<p>3. Hydrocarbon & PAH contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC.</p> <p>These compounds have a potential to originate from accidental oil spills associated with support vessels and disturbance of sediments as a result of the Draft Plan activities that have been contaminated by oil and gas drilling activities.</p>		<p>Significant risk. Ocean quahog is considered to be sensitive to this pressure.</p>		

	<p>4. Physical change (to another seabed/sediment type).</p> <p>This pressure is associated with Draft Plan activities such as the installation of infrastructure (e.g. wind farm foundations and cables), the placement of scour protection where soft sediment habitats are replaced by hard/coarse substratum habitats, capital dredging where the residual sedimentary habitat differs structurally from the pre-dredge state, and the protection of cables using rock dumping and mattressing techniques.</p>	<p>Significant risk. A change in habitat type may result in the habitat being unsuitable and ocean quahog is considered as having a high sensitivity to physical change to another seabed habitat type.</p>
	<p>5. Smothering and siltation rate changes (heavy).</p> <p>This pressure is associated with Draft Plan activities such as dredging, construction activities and cable burial (ploughing or jetting).</p>	<p>Significant risk. Although ocean quahog burrow into the sediment, they use a short inhalant siphon which sits above the sediment surface for feeding and respiration. The feature is thought to have no tolerance and low recovery to the pressure and therefore a high sensitivity.</p>
	<p>6. Smothering and siltation rate changes (light).</p> <p>This pressure is associated with Draft Plan activities such as dredging, construction activities and cable burial (ploughing or jetting).</p>	<p>No significant risk. Ocean quahog is not sensitive to siltation rate changes (light).</p>
	<p>7. Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals). Includes those priority substances listed in Annex II of Directive 2008/105/EC.</p>	<p>No significant risk. Deep sea sediments are unlikely to be contaminated and therefore ocean quahog will not be exposed to pressure.</p>

	<p>Possible sources as a result of development within the Draft Plan OAs include dredging and other activities that may disturb contaminated sediment.</p>	
	<p>8. Transition elements & organo-metal (e.g. TBT) contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC.</p> <p>Sediments contaminated by oil and gas drilling activities (drill fluids can contain certain metals) have the potential to be disturbed as a result of development within the Draft Plan OAs by dredging and other activities.</p>	<p>Significant risk. Ocean quahog is considered to be sensitive to this pressure. In the absence of site specific contamination data, on a precautionary basis, it is assumed that the risk to conservation objectives is significant.</p>
	<p>9. Water flow (tidal current) changes, including sediment transport considerations.</p> <p>Possible sources as a result of development within the Draft Plan OAs include the introduction of new structures that alter flow speed and direction (e.g. offshore wind turbines and substation platforms) and capital dredging.</p>	<p>No significant risk. Feature is found in the deep sea and ocean quahog is not sensitive to water flow changes.</p>
<p>C3. Screening results</p>	<p>Taking account of prevailing environmental conditions (B3), Draft Plan activities (B2) have the potential to hinder the achievement of the conservation objectives for the site through the following potential effects (C2):</p>	

	Activity	Ocean quahog aggregations (including sands and gravels as their supporting habitat)
	Offshore wind: Construction	1, 2, 3, 4, 5, 8
	Offshore wind: Operation and maintenance	1, 2, 3, 4, 5, 8
	Offshore wind: Decommissioning	1, 2, 3, 4, 5, 8
	Power cable: Laying, burial and protection	1, 2, 3, 4, 5, 8
	Power cable: Operation and maintenance	1, 2, 3, 4, 5, 8
	Power cable: Decommissioning	1, 2, 3, 4, 5, 8
Part D: Assessment		
D1. Summary of preliminary risk assessment against conservation objectives	With reference to conservation objectives (A3) and outcomes of screening assessment above (C3), the following conservation objective components are at risk from the potential effects that have been screened into the assessment (C2):	
	Favourable condition component	Ocean quahog aggregations (including sands and gravels as their supporting habitat)
	The quality and quantity of its habitat and the composition of its population in terms of number, age and sex ratio are such that they ensure that the population is maintained in numbers which enable it to thrive	1, 2, 3, 4, 5, 8

<p>D2. Review of site specific advice</p>	<p>With reference to conservation objectives (A3), the following feature specific ‘site specific advice’ statements for each feature as summarised in D1 has been extracted from the Supplementary Advice on Conservation Objectives³³:</p> <p>Ocean quahog aggregations (including sands and gravels as their supporting habitat)</p> <p>The feature is being exposed to pressures associated with oil and gas operations and fishing activities which can impact the feature’s extent and distribution and structure and function. Despite this, JNCC advises a conserve objective acknowledging the substantial uncertainty around the ability of any site-based measures to support restoration of the feature within the site; and also in light of wider environmental impacts such as climate change and the feature’s limited capacity to recruit/reproduce. Activities should look to minimise, as far as is practicable, disturbance to individuals within the site.</p> <p>There is limited evidence to suggest that supporting processes are being impeded with respect to supporting the ocean quahog aggregations within the site. As such, JNCC advise a conserve objective for this attribute and advise that activities must look to avoid, as far as is practicable, exceeding Environmental Quality Standards (EQS), as well as change in substrate extent and distribution.</p>				
<p>D3. Detailed risk assessment against conservation objectives</p>	<p>Assessment of ocean quahog aggregations (including sands and gravels as their supporting habitat)in view of conservation objectives:</p> <table border="1" data-bbox="517 1031 2011 1238"> <thead> <tr> <th data-bbox="517 1031 1048 1086">Site Specific Advice</th> <th data-bbox="1048 1031 2011 1086">Comment on risk from identified effect mechanisms</th> </tr> </thead> <tbody> <tr> <td data-bbox="517 1086 1048 1238">To provide the best chance of any potential settlement for new recruits and to retain existing individuals, activities should look to</td> <td data-bbox="1048 1086 2011 1238">OA (TOG9) is located partially within the Norwegian Boundary Sediment Plan NCMPA and will directly overlap an area where ocean quahog has been recorded (see Figure 4).</td> </tr> </tbody> </table>	Site Specific Advice	Comment on risk from identified effect mechanisms	To provide the best chance of any potential settlement for new recruits and to retain existing individuals, activities should look to	OA (TOG9) is located partially within the Norwegian Boundary Sediment Plan NCMPA and will directly overlap an area where ocean quahog has been recorded (see Figure 4).
Site Specific Advice	Comment on risk from identified effect mechanisms				
To provide the best chance of any potential settlement for new recruits and to retain existing individuals, activities should look to	OA (TOG9) is located partially within the Norwegian Boundary Sediment Plan NCMPA and will directly overlap an area where ocean quahog has been recorded (see Figure 4).				

³³ JNCC (2018) Supplementary Advice on Conservation Objectives for Norwegian Boundary Sediment Plain Nature Conservation MPA [online] Available at: [Supplementary Advice on Conservation Objectives for Norwegian Boundary Sediment Plain NCMPA](#) (accessed 01/11/2024).

	<p>minimise, as far as is practicable, disturbance to the existing individuals that may result in a change to the extent and distribution of ocean quahog aggregations within the site and changes in substrata that may result in a change to the natural extent of the ocean quahog's supporting habitat.</p>	<p>Based on the latest information available, TOG9 is anticipated to initially involve installing 300 MW and the foundation will be floating.</p> <p>There is potential for the permanent physical change (to another seabed/sediment type) of small discrete areas of seabed habitat from the placement of gravity anchors into the seabed making the habitat unsuitable for ocean quahog and temporary abrasion/penetration/disturbance of any ocean quahog individuals and supporting habitat on and below the surface of the seabed to habitats from intra array cables and radial connections to offshore installations for which the project is supplying power to. Any chains, wire and weights attaching the floating structures to the seafloor may have an effect over a much wider area and could be a continual potential source of seabed disturbance during operation. There are also potential effects from the use of cable protection, such as rock dumping and concrete mattresses, which would result in a permanent loss or change of habitat.</p> <p>Based on what is known about the habitat preferences of ocean quahog, >99% (approximately 164 km²) of the seabed habitats present within the NCMPA are considered suitable for ocean quahog colonisation. The spatial scale of the potential effects associated with the Draft Plan activities are assessed as small given TOG9 is located partially within the NCMPA and covers an area approximately 8 km² which directly overlaps this protected species. The sensitivity of ocean quahog to these effects can be high. Taking account of the indicative assessment criteria in Table 2, the overall magnitude of the potential effects on extent and distribution is assessed as moderate. In summary, the Draft Plan activities represent a significant risk of hindering the ability to</p>
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		recover the extent and distribution of this feature within the NCMPA.
	<p>To provide the best chance of any potential settlement for new recruits and to retain existing individuals, activities should look to minimise, as far as is practicable, disturbance to the ocean quahog aggregations.</p>	<p>As noted above, there is potential for the permanent physical change (to another seabed/sediment type) of small discrete areas of seabed habitat from the placement of gravity anchors into the seabed making the habitat unsuitable for ocean quahog and temporary abrasion/penetration/disturbance of any ocean quahog individuals and supporting habitat on and below the surface of the seabed to habitats from intra array cables and radial connections to offshore installations for which the project is supplying power to. Any chains, wire and weights attaching the floating structures to the seafloor may have an effect over a much wider area and could be a continual potential source of seabed disturbance during operation. There are also potential effects from the use of cable protection, such as rock dumping and concrete mattresses, which would result in a permanent loss or change of habitat. In addition, there is the potential for habitat structure changes as a result of the removal of substratum (extraction) and smothering and siltation rate changes (heavy) to result in the mortality of populations and/or individuals of ocean quahog due to activities taking place within the OA such as any dredging and/or seabed preparation that might be required.</p> <p>Based on what is known about the habitat preferences of ocean quahog, >99% (approximately 164 km²) of the seabed habitats present within the NCMPA are considered suitable for ocean quahog colonisation. The spatial scale of the potential effects associated with the Draft Plan activities are assessed as small given TOG9 is located partially within the NCMPA and covers an area approximately 8 km² which directly overlaps this protected species. The sensitivity of ocean quahog to these effects can be</p>

		<p>high. Taking account of the indicative assessment criteria in Table 2, the overall magnitude of the potential effects on structure and function is assessed as moderate. In summary, the Draft Plan activities represent a significant risk of hindering the ability to recover the structure and function of this feature within the NCMPA.</p>
	<p>In terms of supporting processes, activities must look to avoid, as far as is practicable, exceeding EQS for contaminants from industry activities within, or in close proximity to, the site.</p>	<p>Pollution events associated with support vessels during construction and operational phases have the potential to affect ocean quahog.</p> <p>Pollution releases from the construction or decommissioning of the wind farms and associated intra array cable installation due to seabed/ground disturbances and resuspension of sediments that may be contaminated are considered temporary and likely to have a relatively limited effect, with the level of effect dependent on the level of contamination within the sediment.</p> <p>Use of antifoulants or <i>in situ</i> cleaning of support vessels and marine infrastructure has the potential to result in pollution releases but these are anticipated to be temporary and relatively localised.</p> <p>Although the potential contamination effects within the NCMPA as a result of the Draft Plan activities are considered to be temporary and are likely to be relatively localised, given the uncertainty in the current level of contamination within the sediments and the potential sensitivity of ocean quahog to these pressures, the overall magnitude of the potential effects on supporting processes is assessed as moderate on a precautionary basis. In summary, there is the potential for the supporting processes that operate at this site to be significantly hindered by development within certain</p>

		Draft Plan OAs with respect to supporting the presence of ocean quahog.
Part E: Risk to the achievement of the conservation objectives		
E1: Risk to the achievement of the conservation objectives for each protected feature Taking each protected feature in turn, and with reference to D1, is the achievement of the conservation objectives hindered by the effects/impacts associated with Draft Plan activities and make the judgement in the absence of mitigation measures.		
Ocean quahog aggregations (including sands and gravels as their supporting habitat)	In the absence of any mitigation measures, the potential effects associated with the Draft Plan activities could significantly hinder the achievement of conservation objectives in respect of the extent and distribution, structure and function, and supporting processes of the ocean quahog within the site. The effects could, in turn, significantly hinder the achievement of the overarching conservation objective to ensure that the protected feature so far as already in favourable condition, remain in such condition, or so far as not already in favourable condition, be brought into such condition, and remain in such condition.	
E2: Risk to the achievement of the conservation objectives for each Draft Plan activity. Taking each Draft Plan activity from B2 in turn, consider if the achievement of the conservation objectives for the site is hindered by the activity within the site. For each Draft Plan activity identify the features and impact mechanisms of concern from C3 and make the judgement in the absence of mitigation measures.		
Offshore wind: Construction	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [ocean quahog aggregations (including sands and gravels as their supporting habitat)] from a range of potential effects [1, 2, 3, 4, 5, 8 – see C2].	
Offshore wind: Operation and maintenance	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [ocean quahog aggregations (including sands and gravels as their supporting habitat)] from a range of potential effects [1, 2, 3, 4, 5, 8 – see C2].	
Offshore wind: Decommissioning	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [ocean quahog aggregations (including sands and gravels as their supporting habitat)] from a range of potential effects [1, 2, 3, 4, 5, 8 – see C2].	

Power cable: Laying, burial and protection	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [ocean quahog aggregations (including sands and gravels as their supporting habitat)] from a range of potential effects [1, 2, 3, 4, 5, 8 – see C2].
Power cable: Operation and maintenance	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [ocean quahog aggregations (including sands and gravels as their supporting habitat)] from a range of potential effects [1, 2, 3, 4, 5, 8 – see C2].
Power cable: Decommissioning	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [ocean quahog aggregations (including sands and gravels as their supporting habitat)] from a range of potential effects [1, 2, 3, 4, 5, 8 – see C2].
Part F: Taking account of mitigation measures	
Is it possible to secure and implement mitigation measures that would enable it to be possible to conclude that the Draft Plan activities do not hinder the achievement of the conservation objectives.	
Extent and distribution of protected features within the site	There is currently no single method that effectively surveys or monitors the population status of ocean quahog <i>in situ</i> . Although TOG9 overlaps only a small part of the NCMPA (Figure 4), it is considered unlikely to be possible to avoid ocean quahog aggregations (including sands and gravels as their supporting habitat). It is not possible to conclude that the Draft Plan activities will not significantly hinder the achievement of the conservation objective to conserve the extent and distribution of ocean quahog aggregations (including sands and gravels as their supporting habitat) within the site.
Structure and function of protected features within the site	There is currently no single method that effectively surveys or monitors the population status of ocean quahog <i>in situ</i> . Although TOG9 overlaps only a small part of the NCMPA (Figure 4), it is considered unlikely to be possible to avoid ocean quahog aggregations (including sands and gravels as their supporting habitat). It is not possible to conclude that the Draft Plan activities will not significantly hinder the achievement of the conservation objective to conserve the structure and function of ocean quahog aggregations (including sands and gravels as their supporting habitat) within the site.
Supporting processes of	As part of the marine licensing process there is a requirement to produce environmental management plans, marine pollution management contingency plans and/or pollution prevention plans to mitigate the

protected features within the site	<p>effects of any pollution releases. Significant releases are only likely to be associated with emergency events, which are considered unlikely. Site specific surveys undertaken as part of project level assessments will confirm the presence and need to avoid contaminated sediments. The assessment and management of pollution risks will be undertaken at a project level.</p> <p>In order to reduce impacts to benthic habitats by reducing the potential for seabed damage, use of low noise alternatives to high order detonations (e.g. low order deflagration) will be prioritised when developing protocols to clear UXOs in line with latest UK Government joint position statement³⁴.</p> <p>The implementation of these mitigation measures will ensure that the Draft Plan activities will not significantly hinder the achievement of the conservation objective to conserve the supporting processes of ocean quahog aggregations (including sands and gravels as their supporting habitat).</p>
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Part G: In-combination effects

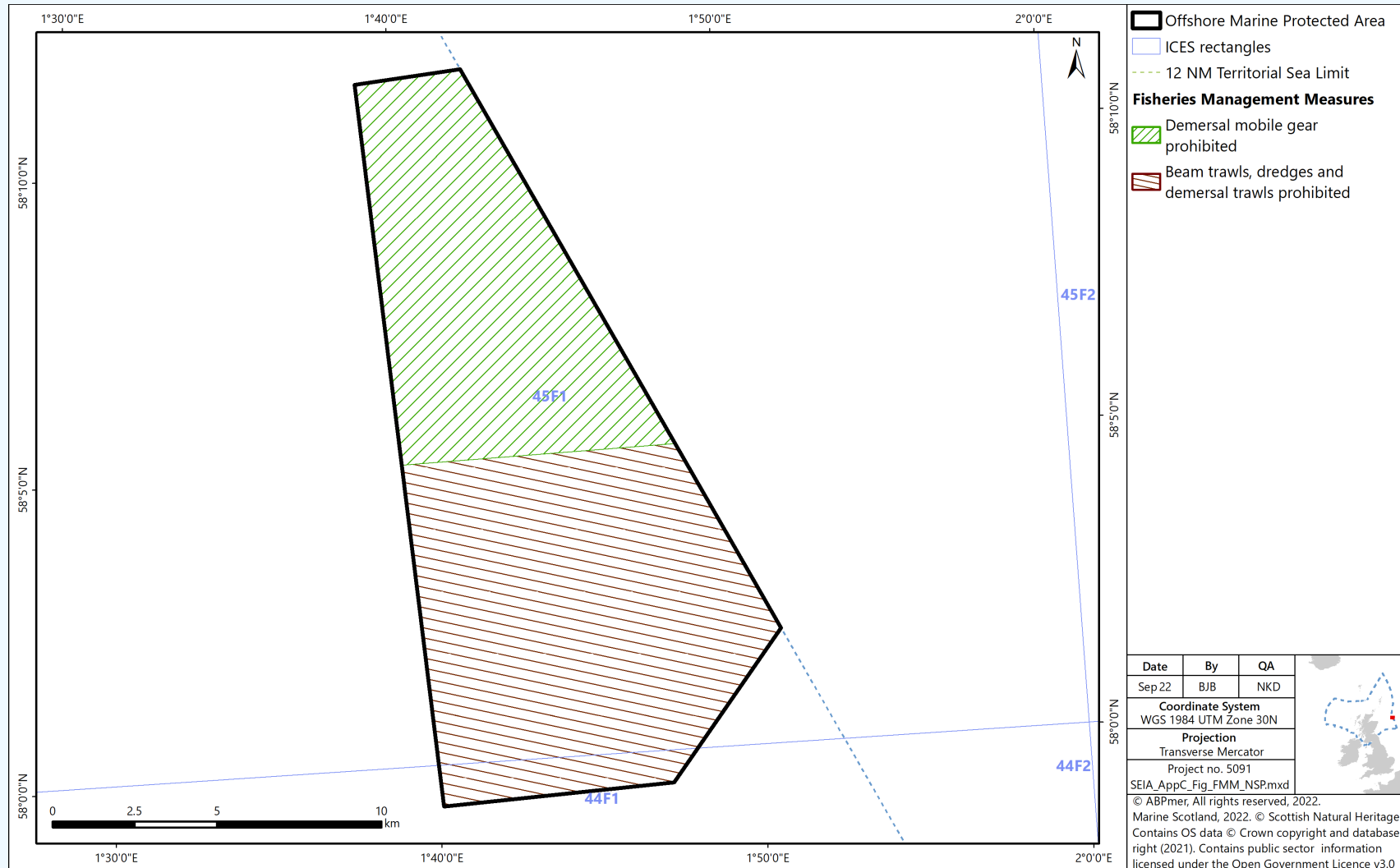
Is it possible to conclude that the Draft Plan activities do not hinder the achievement of the conservation objectives in-combination with other plans and projects taking account of any addition mitigation measures as necessary.

The proposed fisheries management measures for offshore MPAs, including Norwegian Boundary Sediment Plain NCMPA³⁵, that have recently been assessed and consulted on could potentially interact with the Draft Plan. Either zonal (Option 1) or full site (Option 2) management measures are being proposed at this site. The zonal (Option 1) management measures are for beam trawls, dredges and demersal trawls to be prohibited from the whole site and demersal seines to be prohibited from a zone in the north of the site (Figure 5). The proposed zonal (Option 1) management measures give an area in the northern part of the NCMPA a higher level of protection to maintain that status. In the southern part of the NCMPA there has been little or no activity in recent years, however a precautionary approach is being proposed by prohibiting activity to ensure the condition of the NCMPA is maintained or improved. In recognition of the lower impact of seine net fishing (except for pair seines which are more similar to pair trawls in use and effect), this gear is proposed to still be permitted in the southern part of the NCMPA. The proposed full site (Option 2) management measures are for all demersal mobile gears to be prohibited throughout the site.

³⁴ UK Government (2025) Policy paper Marine Environment: unexploded ordnance clearance joint position statement. [online] Available at: [Marine environment: unexploded ordnance clearance Joint Position Statement - GOV.UK](#) (accessed 21/03/2025)

³⁵ Scottish Government (2024) Fisheries Management Measures within Scottish Offshore Marine Protected Areas (MPAs) - Site Proposal Document [online] Available at: [13. Norwegian Boundary Sediment Plain MPA - Fisheries Management Measures within Scottish Offshore Marine Protected Areas \(MPAs\) - Site Proposal Document - gov.scot](#) (accessed 01/11/2024).

Figure 5. Proposed zonal (Option 1) management measures in Norwegian Boundary Sediment Plain Nature Conservation Marine Protected Area



If implemented, the proposed zonal (Option 1) and full site (Option 2) management measures at Norwegian Boundary Sediment Plain NCMPA that have been consulted on are assessed as having an overall minor beneficial effect on the environment³⁶. On balance, the environmental beneficial effects of either management option will be marginally greater than the adverse effects associated with the displacement of fishing activity. Overall, the potential effects as a result of the proposed management measures are not considered significant and are unlikely to interact with the Draft Plan.

The potential effects of transmission infrastructure, in terms of the export cable routes for the OAs (including TOG9), which forms part of the NESO's Holistic Network Design (HND) under the Offshore Transmission Network Review (OTNR) and their HND Follow Up Exercise (HND-FUE) work, could also potentially interact with the Draft Plan. Although the export cable route for TOG9 is likely to avoid the NCMPA, there is still the potential for indirect effects on ocean quahog to occur. These include potential smothering and siltation rate changes as a result of power cable laying, burial and protection and power cable operation and maintenance. These changes are likely to be of a localised and temporary nature, and ocean quahog is not sensitive to siltation rate changes (light). There is also the potential for pollution releases from power cable activities due to the disturbance and resuspension of sediments that may be contaminated. These are considered temporary and likely to have a relatively limited effect, with the level of effect dependent on the level of contamination within the sediment. Given the uncertainty in the current level of contamination within the sediments and the potential sensitivity of ocean quahog to these pressures, the overall magnitude of the potential effects on supporting processes is assessed as moderate on a precautionary basis. In order to mitigate this risk, site specific surveys will need to be undertaken as part of project level assessment to confirm the presence of contaminated sediments. Should any contamination be identified, as part of the marine licensing process there will be a requirement to produce environmental management plans, marine pollution management contingency plans and/or pollution prevention plans to mitigate the effects of any pollution releases.

³⁶ Scottish Government (2024) Fisheries Management Measures within Scottish Offshore Marine Protected Areas (MPAs) - Strategic Environmental Assessment Environmental Report [online] Available at: [Supporting documents - Fisheries Management Measures within Scottish Offshore Marine Protected Areas \(MPAs\) - Strategic Environmental Assessment Environmental Report - gov.scot](#) (accessed 13/01/2025).

There is also the potential for in-combination effects on ocean quahog as a result of oil and gas infrastructure and operations, pipelines, and umbilicals which are currently present within the NCMPA. These are ongoing operations that form part of the baseline environment as noted in Part B3 above.

At this stage, no additional mitigation measures have been identified that would avoid the Draft Plan activities, acting in-combination with other plans and projects, from significantly hindering the achievement of conservation objectives. In summary, it is not possible to conclude that the Draft Plan activities will not significantly hinder the achievement of conservation objectives either alone or in-combination with other plans and projects.

Part H: Recording the outcome of the assessment

Record the overall assessment conclusion for each site considered within this template.

In light of the findings of the assessment record set out within this template, the Draft Plan activities subject to assessment have the potential to significantly hinder the achievement of the conservation objectives of Norwegian Boundary Sediment Plain NCMPA.

Table 5. Nature Conservation Marine Protected Area Assessment table for Turbot Bank Nature Conservation Marine Protected Area

Turbot Bank NCMPA

Part A: General Site information																													
A1. Site Name	<p>Turbot Bank NCMPA.</p> <p>Figure 6. Map of Turbot Bank Nature Conservation Marine Protected Area and Option Area</p> <p>The map displays the Turbot Bank area with a hatched region for the Nature Conservation Marine Protected Area (NCMPA) and a solid purple region for the Option Area (E2A). Orange dots represent Sandeels. The map includes a north arrow, a scale bar (0-10 km), and coordinate markings (630000, 6360000, 1°4'W, 0°42'W, 57°20'N, 57°30'N).</p> <table border="1"> <tr> <td>Option Area</td> <td>Sandeels</td> </tr> <tr> <td>Nature Conservation Marine Protected Area</td> <td></td> </tr> </table> <table border="1"> <tr> <td>Date</td> <td>By</td> <td>QA</td> </tr> <tr> <td>Dec 24</td> <td>ASW</td> <td>NKD</td> </tr> <tr> <td colspan="3">Coordinate System</td> </tr> <tr> <td colspan="3">WGS 1984 UTM Zone 30N</td> </tr> <tr> <td colspan="3">Projection</td> </tr> <tr> <td colspan="3">Transverse Mercator</td> </tr> <tr> <td colspan="3">Project No. 5466</td> </tr> <tr> <td colspan="3">Turbot Bank A5</td> </tr> </table> <p><small>© ABPmer, All rights reserved, 2024. Scottish Government, 2024. Contains information from the Scottish Government licensed under the Open Government Licence v3.0. Contains survey data collated by Scottish Natural Heritage/NatureScot and JNCC. Contains JNCC, NatureScot, and UKHO data © copyright and database right 2020.</small></p>	Option Area	Sandeels	Nature Conservation Marine Protected Area		Date	By	QA	Dec 24	ASW	NKD	Coordinate System			WGS 1984 UTM Zone 30N			Projection			Transverse Mercator			Project No. 5466			Turbot Bank A5		
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	A map of the site and distribution of features is also available to view on MPA Mapper JNCC - Adviser to Government on Nature Conservation ³⁷ .
A2. Protected features	<ul style="list-style-type: none"> • Sandeels.
A3. Overarching Conservation Objectives and feature condition	<p>The Conservation Objectives for the Turbot Bank NCMPA are that the protected features³⁸:</p> <ul style="list-style-type: none"> • so far as already in favourable condition, remain in such condition; and • so far as not already in favourable condition, be brought into such condition, and remain in such condition. <p>The current condition of protected feature ³⁹ is as follows:</p> <ul style="list-style-type: none"> • Sandeels – Favourable.
Part B: Sensitivity of protected features and summary of potential risk	
B1. Pressures that protected features are sensitive to	In the absence of detailed JNCC Advice on Operations for Turbot Bank NCMPA, on the basis of other sources of information, namely FeAST ⁴⁰ , PAD ⁴¹ , MarESA ⁴² , the known pressures and feature sensitivities which are potentially of relevance to the Draft Plan activities are as follows:

³⁷ JNCC (undated) MPA Mapper [online] Available at: [MPA Mapper | JNCC - Adviser to Government on Nature Conservation](#) (accessed 01/11/2024).

³⁸ JNCC (2018) Conservation objectives for Turbot Bank Nature Conservation Marine Protected Area [online] Available at: [Turbot Bank NCMPA conservation objectives](#) (accessed 01/11/2024).

³⁹ JNCC (2020) Statements on Conservation Benefits, Condition & Conservation Measures for Turbot Bank Nature Conservation MPA [online] Available at: [Turbot Bank Nature Conservation MPA Conservation Advice Statements](#) (accessed 28/02/2025).

⁴⁰ Nature Scot (2024) Feature Activity Sensitivity Tool (FeAST) [online] Available at: [Feature Activity Sensitivity Tool \(FeAST\) | NatureScot](#) (accessed 01/11/2024).

⁴¹ JNCC (2022) Marine Pressures-Activities Database (PAD) v1.5 [online] Available at: [Marine Pressures-Activities Database \(PAD\) v1.5 | JNCC Resource Hub](#) (accessed 01/11/2024).

⁴² MarLIN (undated) Marine Evidence based Sensitivity Assessment (MarESA) – summary [online] Available at: [Marine Evidence based Sensitivity Assessment \(MarESA\) - summary - MarLIN - The Marine Life Information Network](#) (accessed 01/11/2024).

	<ul style="list-style-type: none"> • Abrasion/penetration/disturbance of the substrate on and below the surface of the seabed; • Hydrocarbon & PAH contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC; • Organic enrichment; • Physical change (to another seabed/sediment type); • Physical loss (to land or freshwater habitat); • Physical removal (extraction of substratum); • Smothering and siltation rate changes (heavy); • Smothering and siltation rate changes (light); • Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals). Includes those priority substances listed in Annex II of Directive 2008/105/EC; • Transition elements & organo-metal (e.g. TBT) contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC; and • Water flow (tidal current) changes, including sediment transport considerations.
<p>B2. Draft Plan related activities considered capable of affecting the protected features</p>	<p>With reference to FeAST⁴³, PAD⁴⁴, MarESA⁴⁵, the following generic activities associated with the Draft Plan are identified as capable of affecting protected features of the site:</p> <ul style="list-style-type: none"> • Offshore wind: Construction; • Offshore wind: Operation and maintenance; • Offshore wind: Decommissioning; • Power cable: Laying, burial and protection; • Power cable: Operation and maintenance; and • Power cable: Decommissioning.

⁴³ Nature Scot (2024) Feature Activity Sensitivity Tool (FeAST) [online] Available at: [Feature Activity Sensitivity Tool \(FeAST\) | NatureScot](#) (accessed 01/11/2024).

⁴⁴ JNCC (2022) Marine Pressures-Activities Database (PAD) v1.5 [online] Available at: [Marine Pressures-Activities Database \(PAD\) v1.5 | JNCC Resource Hub](#) (accessed 01/11/2024).

⁴⁵ MarLIN (undated) Marine Evidence based Sensitivity Assessment (MarESA) – summary [online] Available at: [Marine Evidence based Sensitivity Assessment \(MarESA\) - summary - MarLIN - The Marine Life Information Network](#) (accessed 01/11/2024).

B3. Other ongoing activities, threats and pressures which are relevant to the baseline conditions at the site	<p>With reference to Supplementary Advice on Conservation Objectives⁴⁶ and Management Options Paper⁴⁷, other ongoing/operational activities, or other threats/pressures, which are relevant to the prevailing environmental conditions against which the assessment has been undertaken are as follows:</p> <ul style="list-style-type: none"> • Fishing activity (demersal); and • Climate change.
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Part C: Screening of potential effects

C1. Potential effect mechanisms from activities and preliminary screening assessment	With reference to B1, the potential effect mechanisms from Draft Plan activities identified in B2 to protected features are as follows:	
	Potential effect	Sandeels
	Abrasion/penetration/disturbance of the substrate on and below the surface of the seabed	Y
	Hydrocarbon & PAH contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC	Y
	Organic enrichment	Y
	Physical change (to another seabed/sediment type)	Y
	Physical loss (to land or freshwater habitat)	Y
	Physical removal (extraction of substratum)	Y
	Smothering and siltation rate changes (heavy)	Y

⁴⁶ JNCC (2018) Supplementary Advice on Conservation Objectives for Turbot Bank Nature Conservation Marine Protected Area [online] Available at: [Turbot Bank NCMPA Supplementary Advice on conservation objectives](#) (accessed 01/11/2024).

⁴⁷ JNCC (2014) Turbot Bank MPA Management Options Paper v4.0 July 2014 [online] Available at: [Turbot Bank Management Options Paper](#) (accessed 01/11/2024).

	Smothering and siltation rate changes (light)	Y
	Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals). Includes those priority substances listed in Annex II of Directive 2008/105/EC	Y
	Transition elements & organo-metal (e.g. TBT) contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC	Y
	Water flow (tidal current) changes, including sediment transport considerations	Y
C2. Consider whether the achievement of conservation objectives will be hindered	The risk to conservation objectives set out in A3 from the potential effects mechanisms identified in C1 has been evaluated taking account of: iv) the activities taking place; v) the likelihood of them taking place in the location of the feature; and vi) the sensitivity of that feature to the impacts.	
	Potential effect	Risk to conservation objectives
	1. Abrasion/penetration/disturbance of the substrate on and below the surface of the seabed. This pressure is associated with Draft Plan activities such as compression of sediment (e.g. piling), moorings (chains), bed preparation, dredging and cable burial (ploughing or jetting).	Sandeels Significant risk. Sandeel burrows near the seabed surface and so sub-surface abrasion/penetration could cause local mortality. Sandeels prefer sand ripple sediments and so surface abrasion could affect habitat preferences and settlement of sandeels. Overall, sandeels are considered to have a high sensitivity to this pressure.

	<p>2. Hydrocarbon & PAH contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC.</p> <p>These compounds have a potential to originate from accidental oil spills associated with support vessels as a result of Draft Plan activities.</p>	<p>Significant risk. Sandeel is considered to be sensitive to this pressure.</p>
	<p>3. Organic enrichment.</p> <p>This pressure is referring to particulate organic matter and is therefore closely associated with the siltation pressures. Adverse environmental effects include deoxygenation, algal blooms, changes in community structure of benthos and macrophytes.</p>	<p>No significant risk. There are no significant sources of organic matter in offshore waters and therefore sandeels will not be exposed to pressure.</p>
	<p>4. Physical change (to another seabed/sediment type).</p> <p>This pressure is associated with Draft Plan activities such as the installation of infrastructure (e.g. wind farm foundations and cables), the placement of scour protection where soft sediment habitats are replaced by hard/coarse substratum habitats, capital dredging where the residual sedimentary habitat differs structurally from the pre-dredge state, and the protection of cables using rock dumping and mattressing techniques.</p>	<p>Significant risk. Sandeels have specific sediment requirements which affect presence and density and sandeel is considered as having a high sensitivity to this pressure.</p>

	<p>5. Physical loss (to land or freshwater habitat).</p> <p>This pressure is associated with Draft Plan activities located inshore and close to the coastline such as storage, construction and maintenance of devices.</p>	<p>No significant risk. Feature is found in the deep sea and will therefore not be exposed to pressure.</p>
	<p>6. Physical removal (extraction of substratum).</p> <p>This pressure is associated with Draft Plan activities involving seabed preparation or dredging.</p>	<p>Significant risk. As sandeels burrow in and spawn on sand, extraction of their habitat would be expected to be highly detrimental. The feature is therefore considered to have a high sensitivity to this pressure.</p>
	<p>7. Smothering and siltation rate changes (heavy).</p> <p>This pressure is associated with Draft Plan activities such as dredging, construction activities and cable burial (ploughing or jetting)</p>	<p>Significant risk. Sandeels have specific sediment requirements which affect presence and density, and burrows near the surface can be infilled affecting population density. The feature is therefore considered to have a high sensitivity to siltation rate changes (heavy).</p>
	<p>8. Smothering and siltation rate changes (light).</p> <p>This pressure is associated with Draft Plan activities such as dredging, construction activities and cable burial (ploughing or jetting).</p>	<p>Significant risk. Sandeels have specific sediment requirements which affect presence and density, and burrows near the surface can be infilled affecting population density. The feature is therefore considered to have a medium sensitivity to siltation rate changes (light).</p>

	<p>9. Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals). Includes those priority substances listed in Annex II of Directive 2008/105/EC.</p> <p>Possible sources as a result of development within Draft Plan OAs include dredging and other activities that may disturb contaminated sediment.</p>	<p>No significant risk. Deep sea sediments are unlikely to be contaminated and therefore sandeels will not be exposed to pressure.</p>
	<p>10. Transition elements & organo-metal (e.g. TBT) contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC.</p> <p>Possible sources as a result of the development within Draft Plan OAs include dredging and other activities that may disturb contaminated sediment.</p>	<p>No significant risk. Deep sea sediments are unlikely to be contaminated and therefore sandeels will not be exposed to pressure.</p>
	<p>11. Water flow (tidal current) changes, including sediment transport considerations.</p> <p>Possible sources as a result of the Draft Plan activities include the introduction of new structures that alter flow speed and direction (e.g. offshore wind turbines and substation platforms) and capital dredging.</p>	<p>No significant risk. Sandeels are dependent on well flushed sands and an increase in water flow is likely to improve habitat quality. Overall, however, sandeels are considered to have a low sensitivity to this pressure and it is not considered to pose a significant risk to conservation objectives.</p>

C3. Screening results	<p>Taking account of prevailing environmental conditions (B3), Draft Plan activities (B2) have the potential to hinder the achievement of the conservation objectives for the site through the following potential effects (C2):</p> <table border="1" data-bbox="555 375 2022 754"> <thead> <tr> <th data-bbox="555 375 1290 427">Activity</th> <th data-bbox="1290 375 2022 427">Sandeels</th> </tr> </thead> <tbody> <tr> <td data-bbox="555 427 1290 480">Offshore wind: Construction</td> <td data-bbox="1290 427 2022 480">1, 2, 4, 6, 7, 8</td> </tr> <tr> <td data-bbox="555 480 1290 533">Offshore wind: Operation and maintenance</td> <td data-bbox="1290 480 2022 533">1, 2, 4, 6, 7, 8</td> </tr> <tr> <td data-bbox="555 533 1290 585">Offshore wind: Decommissioning</td> <td data-bbox="1290 533 2022 585">1, 2, 4, 6, 7, 8</td> </tr> <tr> <td data-bbox="555 585 1290 638">Power cable: Laying, burial and protection</td> <td data-bbox="1290 585 2022 638">1, 2, 4, 6, 7, 8</td> </tr> <tr> <td data-bbox="555 638 1290 691">Power cable: Operation and maintenance</td> <td data-bbox="1290 638 2022 691">1, 2, 4, 6, 7, 8</td> </tr> <tr> <td data-bbox="555 691 1290 754">Power cable: Decommissioning</td> <td data-bbox="1290 691 2022 754">1, 2, 4, 6, 7, 8</td> </tr> </tbody> </table>	Activity	Sandeels	Offshore wind: Construction	1, 2, 4, 6, 7, 8	Offshore wind: Operation and maintenance	1, 2, 4, 6, 7, 8	Offshore wind: Decommissioning	1, 2, 4, 6, 7, 8	Power cable: Laying, burial and protection	1, 2, 4, 6, 7, 8	Power cable: Operation and maintenance	1, 2, 4, 6, 7, 8	Power cable: Decommissioning	1, 2, 4, 6, 7, 8
Activity	Sandeels														
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Power cable: Operation and maintenance	1, 2, 4, 6, 7, 8														
Power cable: Decommissioning	1, 2, 4, 6, 7, 8														
Part D: Assessment															
D1. Summary of preliminary risk assessment against conservation objectives	<p>With reference to conservation objectives (A3) and outcomes of screening assessment above (C3), the following conservation objective components are at risk from the potential effects that have been screened into the assessment (C2):</p> <table border="1" data-bbox="555 986 2022 1169"> <thead> <tr> <th data-bbox="555 986 1464 1038">Favourable condition component</th> <th data-bbox="1464 986 2022 1038">Sandeels</th> </tr> </thead> <tbody> <tr> <td data-bbox="555 1038 1464 1169">The quality and quantity of its habitat and the composition of its population are such that they ensure that the population is maintained in numbers which enable it to thrive</td> <td data-bbox="1464 1038 2022 1169">1, 2, 4, 6, 7, 8</td> </tr> </tbody> </table>	Favourable condition component	Sandeels	The quality and quantity of its habitat and the composition of its population are such that they ensure that the population is maintained in numbers which enable it to thrive	1, 2, 4, 6, 7, 8										
Favourable condition component	Sandeels														
The quality and quantity of its habitat and the composition of its population are such that they ensure that the population is maintained in numbers which enable it to thrive	1, 2, 4, 6, 7, 8														

<p>D2. Review of site specific advice</p>	<p>With reference to conservation objectives (A3), the following feature specific ‘site specific advice’ statements for each feature as summarised in D1 has been extracted from the Supplementary Advice on Conservation Objectives⁴⁸:</p> <p>Sandeels</p> <p>Objectives have not been set for the attributes presence and distribution or supporting processes. Conserving sandeel presence and distribution within a site involves ensuring the continued access of individuals to resources within the site on which they rely, including, but not limited to, feeding, courtship, spawning or use as nursery grounds.</p> <p>Sandeels have specific sediment requirements which affect presence and density. Sandeels are unlikely to relocate in response to changing conditions and are therefore considered particularly vulnerable to the impacts of climate change. Recovery of the feature within a site is likely to be reliant on a supply of recruits from elsewhere/sufficient numbers remaining for self-recruitment and highly dependent on wider environmental pressures, such as climate change.</p> <p>In terms of supporting processes, it is important to avoid impeding the wider natural hydrodynamic regime within a site as this plays a critical role in the natural distribution of sandeels. It is also important to avoid changing the natural sediment composition of the supporting habitat, particularly increasing the silt content, as well as avoid changing the natural distribution and depth of the supporting habitat. In addition, it is important to avoid reducing natural water and sediment quality properties within a site and, as a minimum, ensure compliance with existing EQS so that sandeels can continue to use the site.</p>
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⁴⁸ JNCC (2018) Supplementary Advice on Conservation Objectives for Turbot Bank Nature Conservation Marine Protected Area [online] Available at: [Turbot Bank NCMPA Supplementary Advice on conservation objectives](#) (accessed 01/11/2024).

<p>D3. Detailed risk assessment against conservation objectives</p>	<p>Assessment of sandeel in view of conservation objectives:</p>	
	<p>Site Specific Advice</p>	<p>Comment on risk from identified effect mechanisms</p>
<p>Conserving sandeel presence and distribution within a site involves ensuring the continued access of individuals to resources within the site on which they rely, including, but not limited to, feeding, courtship, spawning or use as nursery grounds.</p>	<p>OA (E2A) is located approximately 150 m from the Turbot Bank NCMPA (see Figure 6).</p> <p>Noise emissions during construction from piling activities, survey and / or clearance of unexploded ordnance have the potential to cause physiological damage and/or displacement of fish species from the area of effect. Sandeels lack a swim bladder and are therefore considered to have poor sensitivity to sound pressure, although they may conversely be sensitive to particle motion (vibration).</p> <p>There is the potential for effects on some fish species from electromagnetic field (EMF) exposure associated with intra array cables. However, the evidence about sensitivity of species is generally assessed as scarce and uncertainties concerning EMF effects remain.</p> <p>The introduction of offshore wind arrays may also cause a barrier effect, by preventing the movement of mobile species through the area.</p> <p>The spatial scale of the pressures associated with the Draft Plan activities are assessed as moderate given E2A is near to the NCMPA. The sensitivity of sandeels to these effects is unknown given the lack of evidence from available information sources</p>	

		<p>(e.g. FeAST⁴⁹). Taking account of the indicative assessment criteria in Table 2, and given the uncertainty on the sensitivity of sandeels to these effects, the overall magnitude of the potential effects on presence and distribution of sandeels is assessed as moderate on a precautionary basis. In summary, there is the potential for the presence and distribution of sandeels within the NCMPA to be significantly hindered by the Draft Plan activities.</p>
	<p>In terms of supporting processes, it is important to avoid impeding the wider natural hydrodynamic regime within a site as this plays a critical role in the natural distribution of sandeels. It is also important to avoid changing the natural sediment composition of the supporting habitat, particularly increasing the silt content, as well as avoid changing the natural distribution and depth of the supporting habitat.</p>	<p>Based on the latest available information, the proposed foundation will be floating. The main foundation material will be either steel or concrete. Foundation types that are being considered are Semi-Submersible, Barge, Tension Leg Platform (TLP), Spar, Multi-Tower Semi-Submersible, Buoy and Semi-Spar. Several mooring types considered include catenary, semi-taut, taut and tension-leg. The proposed number of turbines will be up to 67, the turbine hub height will be a maximum of 195 m with a maximum turbine rotor diameter of 300 m⁵⁰.</p> <p>There is potential for the permanent physical change (to another seabed/sediment type) of small discrete areas of seabed habitat within the footprint of the turbines and temporary damage to habitats from intra array cables and/or the placement of gravity anchors into the seabed making the habitat unsuitable for sandeels and temporary abrasion/penetration/disturbance of any supporting habitat on and below the surface of the seabed from intra array cables. Any chains, wire and weights attaching the</p>

⁴⁹ Nature Scot (2024) Feature Activity Sensitivity Tool (FeAST) [online] Available at: [Feature Activity Sensitivity Tool \(FeAST\) | NatureScot](#) (accessed 01/11/2024).

⁵⁰ Muir Mhòr (2023) Muir Mhòr Offshore Wind Farm Offshore EIA Scoping Report [online] Available at: [Microsoft Word - Muir Mhòr Offshore Wind Farm Offshore Environmental Impact Assessment \(EIA\) Scoping Report CLEAN.docx](#) (accessed 01/10/2024)

		<p>floating structures to the seafloor may have an effect over a much wider area and could be a continual potential source of seabed disturbance during operation. There are potential effects from the use of cable protection, such as rock dumping and concrete mattresses, which would result in a localised change in processes due to the presence of a new structure on the seabed. There is also the potential for habitat structure changes as a result of the removal of substratum (extraction) and smothering and siltation rate changes (heavy) from any dredging and/or seabed preparation that might be required.</p> <p>There is potential for changes to hydrodynamics caused by the development of offshore wind in E2A and associated inter array cables to affect the sediment transport and physical processes. The extent of the effects will be dependent on the design of the array, the technology deployed in the OA, the inter array cable design.</p> <p>The spatial scale of the potential effects associated with the Draft Plan activities are assessed as minor given E2A is located approximately 150 m from the NCMPA and the zone of influence associated with the tidal excursion range from this OA overlaps the NCMPA. The sensitivity of sandeels to these effects can be high. Taking account of the indicative assessment criteria in Table 2, the overall magnitude of the potential effects on supporting processes is assessed as moderate. In summary, there is the potential for the supporting processes of sandeels within the NCMPA to be significantly hindered by the Draft Plan activities.</p>
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	<p>In terms of supporting processes, it is important to avoid reducing natural water and sediment quality properties within a site and, as a minimum, ensure compliance with existing EQS so that sandeels can continue to use the site.</p>	<p>Pollution events associated with support vessels during construction and operational phases have the potential to affect sandeels.</p> <p>Pollution releases from the construction or decommissioning of the wind farms and associated intra array cable installation due to seabed/ground disturbances and resuspension of sediments that may be contaminated are considered temporary and likely to have a relatively limited effect, with the level of effect dependent on the level of contamination within the sediment.</p> <p>Use of antifoulants or <i>in situ</i> cleaning of support vessels and marine infrastructure has the potential to result in pollution releases but these are anticipated to be temporary and relatively localised.</p> <p>Although the potential contamination effects within the NCMPA as a result of the Draft Plan activities are considered to be temporary and are likely to be relatively localised, given the uncertainty in the current level of contamination within the sediments and the potential sensitivity of sandeel to these pressures, the overall magnitude of the potential effects on supporting processes is assessed as moderate on a precautionary basis. In summary, there is the potential for the supporting processes that operate at this site to be significantly hindered by the Draft Plan activities with respect to supporting the presence of sandeel.</p>
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Part E: Risk to the achievement of the conservation objectives	
E1: Risk to the achievement of the conservation objectives for each protected feature Taking each protected feature in turn, and with reference to D1, is the achievement of the conservation objectives hindered by the effects/impacts associated with Draft Plan activities and make the judgement in the absence of mitigation measures.	
Sandeels	In the absence of any mitigation measures, the potential effects associated with the Draft Plan activities could significantly hinder the achievement of conservation objectives in respect of the presence and distribution, and supporting processes of sandeels within the site. The effects could, in turn, significantly hinder the achievement of the overarching conservation objective to ensure that the protected feature so far as already in favourable condition, remain in such condition, or so far as not already in favourable condition, be brought into such condition, and remain in such condition.
E2: Risk to the achievement of the conservation objectives for each Draft Plan activity. Taking each Draft Plan activity from B2 in turn, consider if the achievement of the conservation objectives for the site is hindered by the activity within the site. For each Draft Plan activity identify the features and impact mechanisms of concern from C3 and make the judgement in the absence of mitigation measures.	
Offshore wind: Construction	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [sandeels] from a range of potential effects [1, 2, 4, 6, 7, 8 – see C2].
Offshore wind: Operation and maintenance	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [sandeels] from a range of potential effects [1, 2, 4, 6, 7, 8 – see C2].
Offshore wind: Decommissioning	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [sandeels] from a range of potential effects [1, 2, 4, 6, 7, 8 – see C2].
Power cable: Laying, burial and protection	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [sandeels] from a range of potential effects [1, 2, 4, 6, 7, 8 – see C2].

Power cable: Operation and maintenance	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [sandeels] from a range of potential effects [1, 2, 4, 6, 7, 8 – see C2].
Power cable: Decommissioning	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [sandeels] from a range of potential effects [1, 2, 4, 6, 7, 8 – see C2].
<p>Part F: Taking account of mitigation measures</p> <p>Is it possible to secure and implement mitigation measures that would enable it to be possible to conclude that the Draft Plan activities do not hinder the achievement of the conservation objectives.</p>	
Presence and distribution of protected features within the site	<p>Physiological risks to fish from piling noise can be mitigated through the application of the JNCC piling protocol, and soft start and ramp-up procedures, although it is recognised that these measures are focused on marine mammals and there is little evidence on whether they are effective for fish. Noise modelling is likely to be necessary at the project level to confirm potential effects and level of uncertainty in predictions.</p> <p>In addition, noise abatement measures at source can be implemented to reduce noise transmission into the wider environment, and therefore reduce displacement effects, although their relative feasibility and effectiveness need to be considered.</p> <p>Low noise alternatives to high order detonations (e.g. low order deflagration) should be prioritised when developing protocols to clear UXOs in line with latest UK Government joint position statement⁵¹.</p> <p>The implementation of these mitigation measures will ensure that the Draft Plan activities will not significantly hinder the achievement of the conservation objective in terms of conserving the presence and distribution of sandeels within the site.</p>

⁵¹ UK Government (2025) Policy paper Marine Environment: unexploded ordnance clearance joint position statement. [online] Available at: [Marine environment: unexploded ordnance clearance Joint Position Statement - GOV.UK](#) (accessed 21/03/2025)

Supporting processes of protected features within the site	<p>There is uncertainty as to the exact floating foundation technology to be deployed in the OA, and the array design. Hydrodynamic and sediment transport assessments will be required at a project level to confirm and validate the potential effects on the seabed sediments and physical processes. This will also confirm the degree of overlap with the Turbot Bank NCMPA and potential effects on sandeel.</p> <p>As part of the marine licensing process there is a requirement to produce environmental management plans, marine pollution management contingency plans and/or pollution prevention plans to mitigate the effects of any pollution releases. Significant releases are only likely to be associated with emergency events, which are considered unlikely. Site specific surveys undertaken as part of project level assessments will confirm the presence and need to avoid contaminated sediments. The assessment and management of pollution risks will be undertaken at a project level.</p> <p>The implementation of these mitigation measures will ensure that the Draft Plan activities will not significantly hinder the achievement of the conservation objective in terms of supporting processes of sandeels within the site.</p>
<p>Part G: In-combination effects</p> <p>Is it possible to conclude that the Draft Plan activities do not hinder the achievement of the conservation objectives in-combination with other plans and projects taking account of any addition mitigation measures as necessary.</p>	
<p>The proposed fisheries management measures for offshore MPAs initially included developing measures for Turbot Bank NCMPA which proposed that targeted sandeel fishing across the full site should be prohibited⁵². However, the Sandeel (Prohibition of Fishing) (Scotland) Order 2024 came into force on 26 March 2024 ahead of the 2024 fishery season and applies to all vessels (UK and EU) fishing within Scottish waters⁵³. JNCC consider sandeels to be in favourable condition within Turbot Bank NCMPA and that in the absence of a targeted sandeel fishery, no additional management of fishing activity is necessary to achieve the conservation objective for the sandeel feature of the Turbot Bank NCMPA. In light of this, the Scottish Government is no longer proposing site specific measures for Turbot Bank NCMPA.</p>	

⁵² Scottish Government (2024) Fisheries Management Measures within Scottish Offshore Marine Protected Areas (MPAs) - Site Proposal Document [online] Available at: [16. Turbot Bank MPA - Fisheries Management Measures within Scottish Offshore Marine Protected Areas \(MPAs\) - Site Proposal Document - gov.scot](#) (accessed 01/11/2024).

⁵³ Scottish Government (2024) Fisheries Management Measures within Scottish Offshore Marine Protected Areas (MPAs) - Site Proposal Document [online] Available at: [Site Proposal Document - Protecting Biodiversity within Scottish Offshore Marine Protected Areas](#) (accessed 13/01/2025).

The potential effects of transmission infrastructure, in terms of the export cable routes for the OAs (including E2A), which forms part of the NESO's HND and their HND-FUE work, could also potentially interact with the Draft Plan. Although the export cable routes will be able to avoid the NCMPA, there is the potential for indirect effects on sandeels to occur. The potential effects associated with power cable laying, burial and protection and power cable operation and maintenance have already been assessed for the Draft Plan above in terms of intra-array cabling and were found not to hinder the achievement of the conservation objectives.

The implementation of additional mitigation measures will ensure that the Draft Plan activities will not significantly hinder the achievement of conservation objectives either alone or in-combination with other plans and projects.

Part H: Recording the outcome of the assessment

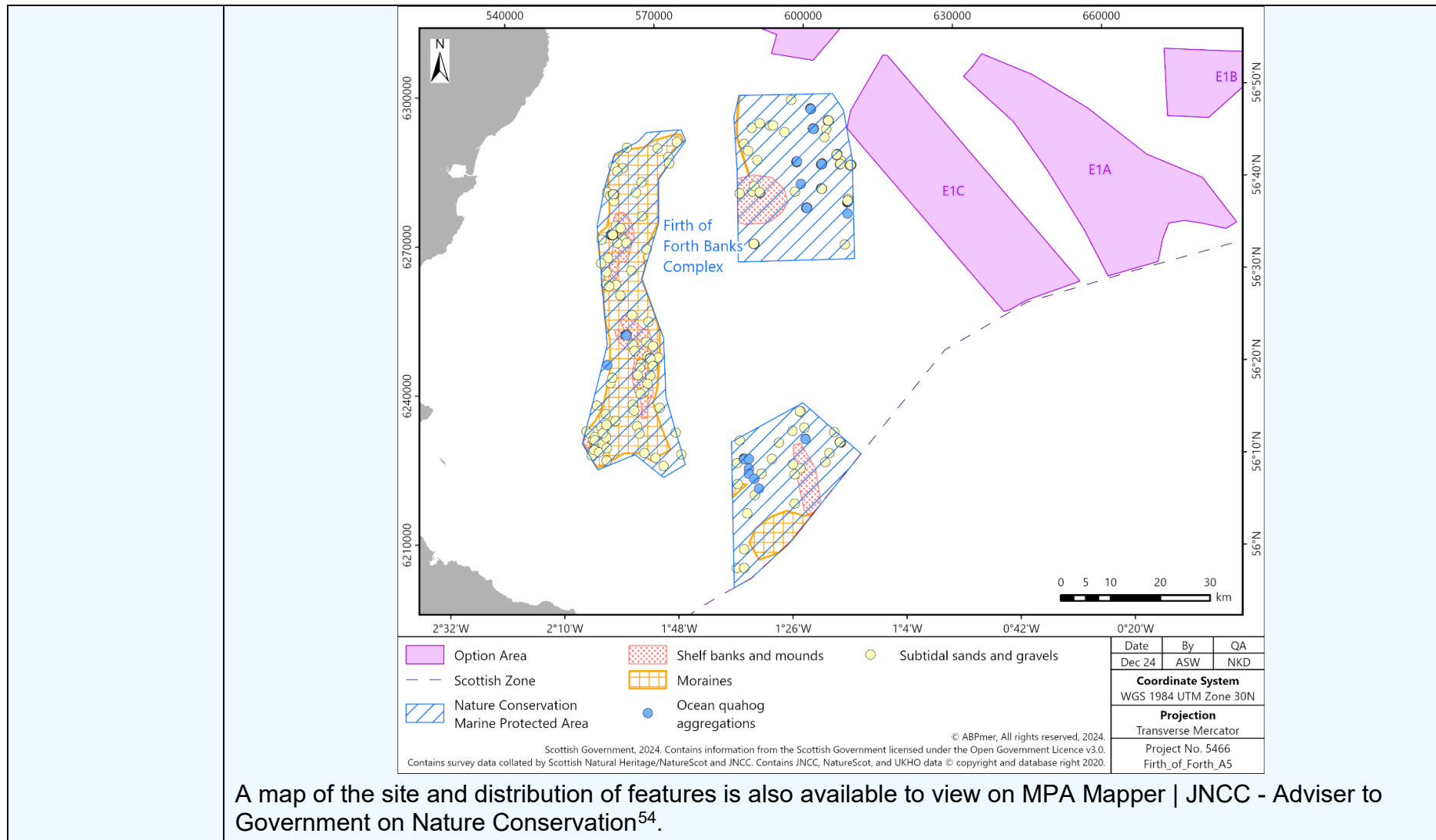
Record the overall assessment conclusion for each site considered within this template.

Provided that the mitigation measures identified as necessary are secured and implemented, the Draft Plan activities will not significantly hinder the achievement of the conservation objectives of Turbot Bank NCMPA.

Table 6. Nature Conservation Marine Protected Area Assessment table for Firth of Forth Banks Complex Nature Conservation Marine Protected Area

Firth of Forth Banks Complex NCMPA

Part A: General Site information	
A1. Site Name	Firth of Forth Banks Complex NCMPA. Figure 7. Map of Firth of Forth Banks Complex Nature Conservation Marine Protected Area and Option Area



⁵⁴ JNCC (undated) MPA Mapper [online] Available at: [MPA Mapper | JNCC - Adviser to Government on Nature Conservation](#) (accessed 01/11/2024).

<p>A2. Protected features</p>	<ul style="list-style-type: none"> • Ocean quahog aggregations; • Offshore subtidal sands and gravels; • Shelf banks and mounds; and • Moraines representative of the Wee Bankie Key Geodiversity Area.
<p>A3. Overarching Conservation Objectives and feature condition</p>	<p>The Conservation Objectives for the Firth of Forth Banks Complex NCMPA are that the protected features⁵⁵:</p> <ul style="list-style-type: none"> • so far as already in favourable condition, remain in such condition; and • so far as not already in favourable condition, be brought into such condition, and remain in such condition. <p>The current condition of protected features⁵⁶ is as follows:</p> <ul style="list-style-type: none"> • Ocean quahog aggregations - Unfavourable; • Offshore subtidal sands and gravels - Unfavourable; • Shelf banks and mounds - Favourable; and • Moraines representative of the Wee Bankie Key Geodiversity Area - Favourable.

⁵⁵ JNCC (2018) Conservation Objectives for the Firth of Forth Banks Complex Nature Conservation MPA [online] Available at: [Firth of Forth Banks Complex NCMPA Conservation objectives](#) (accessed 01/11/2024).

⁵⁶ JNCC (2020) Statements on Conservation Benefits, Condition & Conservation Measures for Firth of Forth Banks Complex Nature Conservation MPA [online] Available at: [Firth of Forth Banks Complex Nature Conservation MPA Conservation Advice Statements](#) (accessed 28/02/2025).

Part B: Sensitivity of protected features and summary of potential risk

B1. Pressures that protected features are sensitive to

With reference to Advice on Operations⁵⁷ and other relevant sources of information (e.g. FeAST⁵⁸, PAD⁵⁹, MarESA⁶⁰), the known pressures and feature sensitivities which are potentially of relevance to the Draft Plan activities are as follows:

- Abrasion/penetration/disturbance of the substrate on and below the surface of the seabed;
- Changes in suspended solids (water clarity);
- Habitat structure changes – removal of substratum (extraction);
- Hydrocarbon & PAH contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC;
- Physical change (to another seabed/sediment type);
- Smothering and siltation rate changes (heavy);
- Smothering and siltation rate changes (light);
- Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals). Includes those priority substances listed in Annex II of Directive 2008/105/EC;
- Transition elements & organo-metal (e.g. TBT) contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC; and
- Water flow (tidal current) changes, including sediment transport considerations.

⁵⁷ JNCC (2018) Firth of Forth Banks Complex MPA – Conservation Advice [online] Available at: [Firth of Forth Banks Complex MPA – Conservation Advice | JNCC Resource Hub](#) (accessed 01/11/2024).

⁵⁸ Nature Scot (2024) Feature Activity Sensitivity Tool (FeAST) [online] Available at: [Feature Activity Sensitivity Tool \(FeAST\) | NatureScot](#) (accessed 01/11/2024).

⁵⁹ JNCC (2022) Marine Pressures-Activities Database (PAD) v1.5 [online] Available at: [Marine Pressures-Activities Database \(PAD\) v1.5 | JNCC Resource Hub](#) (accessed 01/11/2024).

⁶⁰ MarLIN (undated) Marine Evidence based Sensitivity Assessment (MarESA) – summary [online] Available at: [Marine Evidence based Sensitivity Assessment \(MarESA\) - summary - MarLIN - The Marine Life Information Network](#) (accessed 01/11/2024).

B2. Draft Plan related activities considered capable of affecting the protected features	<p>With reference to Advice on Operations⁶¹, the following generic activities associated with the Draft Plan are identified as capable of affecting protected features of the site:</p> <ul style="list-style-type: none"> • Offshore wind: Construction; • Offshore wind: Operation and maintenance; • Offshore wind: Decommissioning; • Power cable: Laying, burial and protection; • Power cable: Operation and maintenance; and • Power cable: Decommissioning.
B3. Other ongoing activities, threats and pressures which are relevant to the baseline conditions at the site	<p>With reference to Supplementary Advice on Conservation Objectives⁶², other ongoing/operational activities, or other threats/pressures, which are relevant to the prevailing environmental conditions against which the assessment has been undertaken are as follows:</p> <ul style="list-style-type: none"> • Oil and gas operations (historic contamination); • Fishing activity (demersal); and • Climate change.
Part C: Screening of potential effects	
C1. Potential effect mechanisms from activities and	<p>With reference to B1, the potential effect mechanisms from Draft Plan activities identified in B2 to protected features are as follows:</p>

⁶¹ JNCC (2018) Firth of Forth Banks Complex MPA – Conservation Advice [online] Available at: [Firth of Forth Banks Complex MPA – Conservation Advice | JNCC Resource Hub](#) (accessed 01/11/2024).

⁶² JNCC (2018) [Supplementary Advice on Conservation Objectives for Firth of Forth Banks Complex NCMPA](#) [online] Available at: [Supplementary Advice on Conservation Objectives for Firth of Forth Banks Complex NCMPA](#) (accessed 01/11/2024).

preliminary screening assessment	Potential effect	Offshore subtidal sands and gravels	Ocean quahog aggregations	Shelf banks and mounds	Wee Bankie Key Geodiversity Area
	Abrasion/penetration/disturbance of the substrate on and below the surface of the seabed	Y	Y	NA	NA
	Changes in suspended solids (water clarity)	NA	NA	NA	NA
	Habitat structure changes – removal of substratum (extraction)	Y	Y	NA	NA
	Hydrocarbon & PAH contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC	Y	Y	NA	NA
	Physical change (to another seabed/sediment type)	Y	Y	NA	NA
	Smothering and siltation rate changes (heavy)	Y	Y	NA	NA
	Smothering and siltation rate changes (light)	Y	Y	NA	NA
	Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals). Includes those priority substances listed in Annex II of Directive 2008/105/EC	Y	Y	NA	NA
	Transition elements & organo-metal (e.g. TBT) contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC	Y	Y	NA	NA
Water flow (tidal current) changes, including sediment transport considerations	Y	Y	NA	NA	
NA – not assessed					

C2. Consider whether the achievement of conservation objectives will be hindered

The risk to conservation objectives set out in A3 from the potential effects mechanisms identified in C1 has been evaluated taking account of:

- vii) the activities taking place;
- viii) the likelihood of them taking place in the location of the feature; and
- ix) the sensitivity of that feature to the impacts.

Potential effect	Risk to conservation objectives			
	Offshore subtidal sands and gravels	Ocean quahog aggregations	Shelf banks and mounds	Wee Bankie Key Geodiversity Area
<p>1. Abrasion/ penetration/ disturbance of the substrate on and below the surface of the seabed.</p> <p>This pressure is associated with Draft Plan activities such as compression of sediment (piling), moorings (chains), bed preparation, dredging and cable burial (ploughing or jetting).</p>	<p>Significant risk. Deep sea sands have a high sensitivity to this pressure. The degree to which particular examples of the habitat is sensitive to the pressure will be dependent on the species present.</p>	<p>Significant risk. Ocean quahog has a thick, solid and heavy shell but despite this is known to be vulnerable to physical abrasion. The damage to this species is related to their body size, with larger specimens being more affected than smaller ones. Ocean quahog are thought to have no resistance to the pressure and low resilience and hence a high sensitivity score is given.</p>	<p>Significant risk. This feature is composed of unconsolidated sediment. It is active over geological timescales, due to the action of deep ocean currents, and has no ability to recover from degradation. Accordingly, it has been defined as having medium sensitivity.</p>	<p>Significant risk. Moraines are relict features comprised of glacial till. Their resistance to erosion is highly variable and depends upon the composition and level of consolidation of the till. Because of the unconsolidated nature of the feature and the likely impact of the pressure, it has been defined as having a medium sensitivity.</p>

	<p>2. Changes in suspended solids (water clarity).</p> <p>This pressure is associated with Draft Plan activities such as dredging and seabed preparation.</p>	<p>No significant risk. Feature is found in the deep sea and will therefore not be exposed to changes in water clarity.</p>	<p>No significant risk. Ocean quahog does not require light and therefore is not sensitive to changes in water clarity.</p>	<p>No significant risk. Significant changes to the water column characteristics could, in theory, affect long term rates of biogenic sediment supply to these bedforms. A change in sediment supply could potentially result in partial and localised damage to the feature's surface or stratigraphy. Given this pressure would return to baseline conditions, the feature would recover and is not considered sensitive to this pressure.</p>	<p>No significant risk. Feature is not sensitive to this pressure.</p>
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	<p>3. Habitat structure changes – removal of substratum (extraction).</p> <p>This pressure is associated with Draft Plan activities such as dredging and seabed preparation.</p>	<p>Significant risk. Deep sea sands are considered to have a high sensitivity to this pressure.</p>	<p>Significant risk. Removal of the substratum would remove the entire population of this species and so ocean quahog are thought to have no tolerance to the pressure and a low recovery potential, hence a high sensitivity.</p>	<p>No significant risk. The pressure has the potential to cause widespread disruption to the feature’s surface or stratigraphy. However, the feature is active under present day hydrodynamic conditions and is therefore considered likely that it will have some ability to recover from the impact caused by the pressure.</p>	<p>Significant risk. Moraines are relict features comprised of glacial till. Their resistance to erosion is highly variable and depends upon the composition and level of consolidation of the till. Because moraines are relict and are unconsolidated, they are considered to have a high sensitivity to this pressure.</p>
	<p>4. Hydrocarbon & PAH contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC.</p>	<p>Significant risk. Deep sea sands are considered to be sensitive to this pressure.</p>	<p>Significant risk. Ocean quahog is considered to be sensitive to this pressure.</p>	<p>No significant risk. Feature is not sensitive to this pressure.</p>	<p>No significant risk. Feature is not sensitive to this pressure.</p>

	<p>These compounds have a potential to originate from accidental oil spills associated with support vessels and disturbance of sediments as a result of Draft Plan activities that have been contaminated by oil and gas drilling activities.</p>				
	<p>5. Physical change (to another seabed/ sediment type).</p> <p>This pressure is associated with Draft Plan activities such as the installation of infrastructure (e.g. wind farm foundations and cables), the placement of scour protection where soft sediment habitats are replaced by</p>	<p>Significant risk. Deep sea sands are considered to have a high sensitivity to the pressure.</p>	<p>Significant risk. A change in habitat type may result in the habitat being unsuitable and ocean quahog is considered as having a high sensitivity to physical change to another seabed habitat type.</p>	<p>No significant risk. The laying of concrete mattresses or rock dump may cause localised alterations to flows (and associated patterns of sediment transport) in the immediate vicinity of the obstruction. Since this is an active feature,</p>	<p>No significant risk. The potential deposition/ placement of material onto the feature will not affect its integrity. Because no part of the feature is being physically removed, the feature is not considered sensitive to this pressure.</p>

	<p>hard/coarse substratum habitats, capital dredging where the residual sedimentary habitat differs structurally from the pre-dredge state, and the protection of cables using rock dumping and matting techniques.</p>			<p>maintained by contemporary hydrodynamic and sedimentary processes, it is possible that partial and localised damage to the feature's surface or stratigraphy may occur. However, because this is an active feature it is likely to have some capacity to recover from any minor degradation caused by this pressure.</p>	
	<p>6. Smothering and siltation rate changes (heavy). This pressure is associated with Draft Plan activities such as dredging, construction</p>	<p>Significant risk. Deep sea sands have a ranging sensitivity to smothering and siltation rate changes (heavy) from low to high. The degree to</p>	<p>Significant risk. Although ocean quahog burrow into the sediment, they use a short inhalant siphon which sits above the sediment surface for feeding and respiration. The</p>	<p>No significant risk. Feature is not sensitive to this pressure.</p>	<p>No significant risk. Feature is not sensitive to this pressure.</p>

	activities and cable burial (ploughing or jetting).	which particular examples of the habitat is sensitive to the pressure will be dependent on the species present. Although the risk to conservation objectives may be variable, it is assumed to be significant on a precautionary basis.	feature is thought to have no tolerance and low recovery to the pressure and therefore a high sensitivity.		
	<p>7. Smothering and siltation rate changes (light).</p> <p>This pressure is associated with Draft Plan activities such as dredging, construction activities and cable burial (ploughing or jetting).</p>	<p>Significant risk. Deep sea sands have a ranging sensitivity to smothering and siltation rate changes (heavy) from low to high. The degree to which particular examples of the habitat is sensitive to the pressure will be dependent on the species present. Although</p>	<p>No significant risk. Ocean quahog is not sensitive to siltation rate changes (light).</p>	<p>No significant risk. Feature is not sensitive to this pressure.</p>	<p>No significant risk. Feature is not sensitive to this pressure.</p>

		the risk to conservation objectives may be variable, it is assumed to be significant on a precautionary basis.			
	<p>8. Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals). Includes those priority substances listed in Annex II of Directive 2008/105/EC.</p> <p>Possible sources as a result of development within Draft Plan OAs include dredging and other activities that may disturb contaminated sediment.</p>	No significant risk. Deep sea sediments are unlikely to be contaminated and therefore will not be exposed to pressure.	No significant risk. Deep sea sediments are unlikely to be contaminated and therefore ocean quahog will not be exposed to pressure.	No significant risk. Feature is not sensitive to this pressure.	No significant risk. Feature is not sensitive to this pressure.

	<p>9. Transition elements & organo-metal (e.g. TBT) contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC.</p> <p>Sediments contaminated by oil and gas drilling activities (drill fluids can contain certain metals) have the potential to be disturbed as a result of development within the Draft Plan OAs by dredging and other activities.</p>	<p>Significant risk. Deep sea sands are considered to be sensitive to this pressure. In the absence of site specific contamination data, on a precautionary basis, it is assumed that the risk to conservation objectives is significant.</p>	<p>Significant risk. Ocean quahog is considered to be sensitive to this pressure. In the absence of site specific contamination data, on a precautionary basis, it is assumed that the risk to conservation objectives is significant.</p>	<p>No significant risk. Feature is not sensitive to this pressure.</p>	<p>No significant risk. Feature is not sensitive to this pressure.</p>
	<p>10. Water flow (tidal current) changes, including sediment transport considerations.</p>	<p>No significant risk. Feature is found in the deep sea and will therefore not be exposed to pressure.</p>	<p>No significant risk. Feature is found in the deep sea and ocean quahog is not sensitive to water flow changes.</p>	<p>Significant risk. Shelf tidal bedform features are only formed and actively maintained within a specific</p>	<p>Significant risk. Moraines are relict features comprised of glacial till. Their resistance to erosion is highly variable and</p>

	<p>Possible sources as a result of Draft Plan activities include the introduction of new structures that alter flow speed and direction (e.g. offshore wind turbines and substation platforms) and capital dredging.</p>			<p>range of tidal current conditions. If these conditions are altered, it is theoretically possible that the bedform feature could either become inactive and/or experience widespread disruption. Unless the tidal current conditions were returned to baseline levels, the bedform feature would not be able to return to its original form. This feature is therefore considered to have a high sensitivity to this pressure.</p>	<p>depends upon the composition and level of consolidation of the till. Because of the unconsolidated nature of the feature and the likely impact of the pressure, it has been defined as having a medium sensitivity.</p>
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C3. Screening results	Taking account of prevailing environmental conditions (B3), Draft Plan activities (B2) have the potential to hinder the achievement of the conservation objectives for the site through the following potential effects (C2):				
	Activity	Offshore subtidal sands and gravels	Ocean quahog aggregations	Shelf banks and mounds	Wee Bankie Key Geodiversity Area
	Offshore wind: Construction	1, 3, 4, 5, 6, 7, 9	1, 3, 4, 5, 6, 9	1, 10	1, 3, 10
	Offshore wind: Operation and maintenance	1, 3, 4, 5, 6, 7, 9	1, 3, 4, 5, 6, 9	1, 10	1, 3, 10
	Offshore wind: Decommissioning	1, 3, 4, 5, 6, 7, 9	1, 3, 4, 5, 6, 9	1, 10	1, 3, 10
	Power cable: Laying, burial and protection	1, 3, 4, 5, 6, 7, 9	1, 3, 4, 5, 6, 9	1, 10	1, 3, 10
	Power cable: Operation and maintenance	1, 3, 4, 5, 6, 7, 9	1, 3, 4, 5, 6, 9	1, 10	1, 3, 10
	Power cable: Decommissioning	1, 3, 4, 5, 6, 7, 9	1, 3, 4, 5, 6, 9	1, 10	1, 3, 10
Part D: Assessment					

D1. Summary of preliminary risk assessment against conservation objectives	With reference to conservation objectives (A3) and outcomes of screening assessment above (C3), the following conservation objective components are at risk from the potential effects that have been screened into the assessment (C2):				
	Favourable condition component	Offshore subtidal sands and gravels	Ocean quahog aggregations	Shelf banks and mounds	Wee Bankie Key Geodiversity Area
	Extent is stable or increasing	3, 5	NA	NA	NA
	Structures and functions, its quality, and the composition of its characteristic biological communities are such as to ensure that it is in a condition which is healthy and not deteriorating	1, 3, 4, 5, 6, 7, 9	NA	NA	NA
	The quality and quantity of its habitat and the composition of its population in terms of number, age and sex ratio are such that they ensure that the population is maintained in numbers which enable it to thrive	NA	1, 3, 4, 5, 6, 9	NA	NA
	The extent, distribution and structure is maintained	NA	NA	1, 10	NA
	The function is maintained so as to ensure that it continues to support its characteristic	NA	NA	1, 10	NA

	biological communities (which includes a reference to the diversity of any species associated with the large-scale feature) and their use of the site for, but not restricted to, feeding, courtship, spawning, or use as nursery grounds				
	The processes supporting that feature are maintained	NA	NA	1, 10	NA
	Its extent, component elements and integrity are maintained	NA	NA	NA	3
	Its structure and functioning are unimpaired	NA	NA	NA	1, 3, 10
	Its surface remains sufficiently unobscured for the purposes of determining whether the above criteria are satisfied	NA	NA	NA	NA
D2. Review of site specific advice	<p>With reference to conservation objectives (A3), the following feature specific 'site specific advice' statements for each feature as summarised in D1 has been extracted from the Supplementary Advice on Conservation Objectives⁶³:</p> <p>Offshore subtidal sands and gravels</p>				

⁶³ JNCC (2018) Supplementary Advice on Conservation Objectives for Firth of Forth Banks Complex Nature Conservation MPA [online] Available at: [Supplementary Advice on Conservation Objectives for Firth of Forth Banks Complex NCMPA](#) (accessed 01/11/2024).

In terms of the **extent and distribution** of the feature, JNCC advise a conserve objective which is based on expert judgement; specifically, understanding of the feature's sensitivity to pressures exerted by activities taking place. Activities should look to minimise, as far as is practicable, the changes in substrata that may result in a change to the extent and distribution of offshore subtidal sands and gravels in the site.

JNCC understands that the offshore subtidal sands and gravels feature is subject to activities that could impact the **structure and function** of the feature, specifically the characteristic communities and consequently function. While the feature is naturally exposed to moderate energy levels (due to the tidal currents present in the site), the level of fishing activity present in the site suggests the structure and function of the feature has been impacted as a result of this activity. As such, JNCC advise a restore objective which is based on expert judgement. Activities should look to minimise, as far as practicable, changes in substrata and biological communities within the site.

There is limited evidence to suggest that **supporting processes** are being impeded with respect to supporting the function of offshore subtidal sands and gravels within the site. As such, JNCC advise a conserve objective which is based on expert judgment, specifically understanding of the feature's sensitivity to pressures associated with ongoing activities. Activities must look to avoid, as far as is practicable, exceeding EQS.

Ocean quahog aggregations

The feature is being exposed to pressures associated with demersal trawling and dredge fishing which may be impacting the feature's **extent and distribution** and **structure and function**. Despite this, JNCC advise a conserve objective acknowledging the substantial uncertainty around the ability of any site-based measures to support restoration of the feature within the site, in light of wider environmental impacts such as climate change and the feature's limited capacity to recruit or reproduce. Activities should look to minimise, as far as is practicable, disturbance to individuals within the site.

There is limited evidence to suggest that **supporting processes** are being impeded with respect to supporting the ocean quahog aggregations within the site. As such, JNCC advise a conserve objective for this attribute and advise that activities must look to avoid, as far as is practicable, exceeding EQS, as well as

change in substrate extent and distribution. Supporting habitats are important in governing the extent and distribution of ocean quahog aggregations and the species is highly sensitive to physical loss of habitat. It is therefore important to conserve the supporting offshore subtidal sands and gravels habitat to provide the best chance of settlement by new recruits and to retain existing individuals.

Shelf banks and mounds

As a large-scale geological feature, it is not considered that any activities currently taking place are capable of significantly affecting the **extent and distribution** of the shelf banks and mounds protected within this site. As such, JNCC advise a conserve objective.

In terms of **structure and function**, as a large-scale geological feature, it is not considered that any human activities are capable of significantly affecting the physical nature of the area of the shelf banks and mounds protected within this site. Moreover, there is no evidence to suggest that the functional role of the shelf banks and mounds has been impaired because of human activity. As such, JNCC advise a conserve objective for this attribute.

In terms of **supporting processes**, the shelf banks and mounds are actively maintained by the prevailing hydrodynamic regime. JNCC do not believe there is any evidence to suggest that the prevailing hydrodynamic regime has been affected by human activities. As such, JNCC advise a conserve objective.

Wee Bankie Key Geodiversity Area

There are currently no activities taking place that are capable of significantly affecting the **extent and distribution** of the protected geodiversity feature of the site. It is not considered possible to recover the extent and distribution of the protected geodiversity feature through human intervention. As such, JNCC advise a conserve objective for the protected geodiversity feature of the site. JNCC recommend that activities that result in the physical removal of material associated with the moraines are kept to a minimum.

	<p>JNCC consider that there are currently no activities taking place that are capable of significantly affecting the structure and function of the protected geodiversity features of the site. As such, JNCC advise a conserve objective. JNCC recommend that activities which result in the sub-surface abrasion, penetration or physical removal of unconsolidated material from the moraines are kept to a minimum.</p> <p>The Wee Bankie Key Geodiversity Feature is a relict geological feature. As such, supporting processes are not relevant.</p>				
<p>D3. Detailed risk assessment against conservation objectives</p>	<p>Assessment of offshore subtidal sands and gravels in view of conservation objectives:</p> <table border="1" data-bbox="488 675 1980 1238"> <thead> <tr> <th data-bbox="488 675 1016 730">Site Specific Advice</th> <th data-bbox="1016 675 1980 730">Assessment of risk from identified effect mechanisms</th> </tr> </thead> <tbody> <tr> <td data-bbox="488 730 1016 1238"> <p>Activities should look to minimise, as far as is practicable, the changes in substrata that may result in a change to the extent and distribution of offshore subtidal sands and gravels in the site.</p> </td> <td data-bbox="1016 730 1980 1238"> <p>OA (E1C) is located approximately 40 m from the Firth of Forth Banks Complex NCMPA (see Figure 7).</p> <p>Based on the latest available information, the proposed foundation will be fixed. The proposed number of turbines is up to 191, with turbine maximum hub height at 218 m (m above Lowest Astronomical Tide (LAT)) and turbine rotor diameter at 350 m⁶⁴. Several foundation types are being considered for the wind turbines and Offshore Substation Platforms (OSPs) including monopile foundations, gravity base foundations, piled jacket foundations (three or four legs for wind turbines, three, four or six legs for OSPs), suction bucket jacket foundations (three or four legs for wind turbines; three, four or six legs for OSPs).</p> </td> </tr> </tbody> </table>	Site Specific Advice	Assessment of risk from identified effect mechanisms	<p>Activities should look to minimise, as far as is practicable, the changes in substrata that may result in a change to the extent and distribution of offshore subtidal sands and gravels in the site.</p>	<p>OA (E1C) is located approximately 40 m from the Firth of Forth Banks Complex NCMPA (see Figure 7).</p> <p>Based on the latest available information, the proposed foundation will be fixed. The proposed number of turbines is up to 191, with turbine maximum hub height at 218 m (m above Lowest Astronomical Tide (LAT)) and turbine rotor diameter at 350 m⁶⁴. Several foundation types are being considered for the wind turbines and Offshore Substation Platforms (OSPs) including monopile foundations, gravity base foundations, piled jacket foundations (three or four legs for wind turbines, three, four or six legs for OSPs), suction bucket jacket foundations (three or four legs for wind turbines; three, four or six legs for OSPs).</p>
Site Specific Advice	Assessment of risk from identified effect mechanisms				
<p>Activities should look to minimise, as far as is practicable, the changes in substrata that may result in a change to the extent and distribution of offshore subtidal sands and gravels in the site.</p>	<p>OA (E1C) is located approximately 40 m from the Firth of Forth Banks Complex NCMPA (see Figure 7).</p> <p>Based on the latest available information, the proposed foundation will be fixed. The proposed number of turbines is up to 191, with turbine maximum hub height at 218 m (m above Lowest Astronomical Tide (LAT)) and turbine rotor diameter at 350 m⁶⁴. Several foundation types are being considered for the wind turbines and Offshore Substation Platforms (OSPs) including monopile foundations, gravity base foundations, piled jacket foundations (three or four legs for wind turbines, three, four or six legs for OSPs), suction bucket jacket foundations (three or four legs for wind turbines; three, four or six legs for OSPs).</p>				

⁶⁴ RPS (2023). Morven Offshore Wind Array Project Environmental Impact Assessment Scoping Report [online] Available at: [Project Moven](#) (accessed 01/10/2024)

		<p>There is potential for permanent physical change (to another seabed/sediment type) within the footprint of the turbines and associated scour protection and temporary damage to habitats from intra array cables. There are also potential effects from the use of cable protection, such as rock dumping and concrete mattresses, which would result in a permanent loss or change of habitat. JNCC has advised that the introduction of substratum into naturally sandy seabed is not fully understood at present.</p> <p>The sensitivity of offshore subtidal sands and gravels to these effects can be high. However, given that E1C is located approximately 40 m from the NCMPA and the zone of influence associated with the tidal excursion range from this OA overlaps the NCMPA, there is no potential for these effects to occur to this feature within the site. In summary, the Draft Plan activities represent no risk of significantly hindering the ability to conserve the extent and distribution of this feature within the NCMPA.</p>	
	<p>Activities should look to minimise, as far as is practicable, changes in substrata and the biological communities associated with offshore subtidal sands and gravels within the site in order to minimise further impact of the feature's structure and function.</p>	<p>As noted above, E1C is located approximately 40 m from the NCMPA. There is therefore no potential for the permanent physical change (to another seabed/sediment type) or habitat structure changes as a result of the removal of substratum (extraction) to occur within the site.</p> <p>There is, however, the potential for smothering and siltation rate changes to result in changes in substrata and the biological communities associated with offshore subtidal sands and gravels due to activities taking place within the OA such as any dredging and/or seabed preparation that might be required.</p>	

		<p>The Firth of Forth Banks Complex NCMPA is 2,130 km² in area, of which >99% has been modelled as offshore subtidal sands and gravels. The spatial scale of the potential effects associated with the Draft Plan activities are assessed as minor given E1C is located approximately 40 m from the NCMPA and the changes in suspended sediment concentrations are likely to be of a localised and temporary nature. Offshore subtidal sands and gravels are considered to have a variable sensitivity to siltation rate changes (light) dependent on the species present. Taking account of the indicative assessment criteria in Table 2, the overall magnitude of the potential effects on structure and function is assessed as minor. In summary, the Draft Plan activities do not represent a significant risk of hindering the ability to conserve the structure and function of this feature within the NCMPA.</p>	
	<p>In terms of supporting processes, activities must look to avoid, as far as is practicable, exceeding EQS for contaminants from industry activities within, or in close proximity to, the site.</p>	<p>Pollution events associated with support vessels during construction and operational phases have the potential to affect the habitat feature and supporting species.</p> <p>Pollution releases from the construction or decommissioning of the wind farms and associated intra array cable installation due to seabed/ground disturbances and resuspension of sediments that may be contaminated are considered temporary and likely to have a relatively limited effect, with the level of effect dependent on the level of contamination within the sediment.</p> <p>Use of antifoulants or <i>in situ</i> cleaning of support vessels and marine infrastructure has the potential to result in pollution releases but these are anticipated to be temporary and relatively localised.</p>	

		<p>Although the potential contamination effects within the NCMPA as a result of the Draft Plan activities are considered to be temporary and are likely to be relatively localised, given the uncertainty in the current level of contamination within the sediments and the potential sensitivity of offshore subtidal sands and gravels to these pressures, the overall magnitude of the potential effects on supporting processes is assessed as moderate on a precautionary basis. In summary, there is the potential for the supporting processes that operate at this site to be significantly hindered by the Draft Plan activities with respect to supporting the presence of offshore subtidal sands and gravels.</p>	
<p>Assessment of ocean quahog aggregations in view of conservation objectives:</p>			
<p>Site Specific Advice</p>		<p>Comment on risk from identified effect mechanisms</p>	
<p>Activities should look to minimise, as far as is practicable, disturbance to individuals of ocean quahog within the site to ensure extent and distribution of the feature is maintained.</p>		<p>OA (E1C) is located approximately 40 m from the Firth of Forth Banks Complex NCMPA (see Figure 7).</p> <p>Based on the latest available information, the proposed foundation will be fixed. The proposed number of turbines is up to 191, with turbine maximum hub height at 218 m and turbine rotor diameter at 350 m⁶⁵. Several foundation types are being considered for the wind turbines and OSPs including monopile foundations, gravity base foundations, piled jacket foundations (three or four legs for wind turbines, three, four or six legs for OSPs), suction bucket jacket foundations (three or four legs for wind turbines; three, four or six legs for OSPs).</p>	

⁶⁵ RPS (2023). Morven Offshore Wind Array Project Environmental Impact Assessment Scoping Report [online] Available at: [Project Moven](#) (accessed 01/10/2024)

		<p>There is potential for permanent physical change (to another seabed/sediment type) within the footprint of the turbines and associated scour protection and temporary damage to habitats and associated species from intra array cables. There are also potential effects from the use of cable protection, such as rock dumping and concrete mattresses, which would result in a permanent loss or change of habitat. JNCC has advised that the introduction of substratum into naturally sandy seabed is not fully understood at present.</p> <p>The sensitivity of ocean quahog to these effects can be high. However, given that E1C is located approximately 40 m from the NCMPA, there is no potential for these effects to occur to this feature within the site. In summary, the Draft Plan activities represent no risk of significantly hindering the ability to conserve the extent and distribution of this feature within the NCMPA.</p>	
	<p>Activities should look to minimise, as far as is practicable, disturbance to individuals of ocean quahog within the site to ensure structure and function of the feature is maintained.</p>	<p>As noted above, E1C is located approximately 40 m from the NCMPA. There is therefore no potential for the permanent physical change (to another seabed/sediment type) or habitat structure changes as a result of the removal of substratum (extraction) to occur within the site.</p> <p>There is, however, the potential for smothering and siltation rate changes to result in the mortality of populations and/or individuals of ocean quahog due to activities taking place within the OA such as any dredging and/or seabed preparation that might be required.</p>	

		<p>Based on what is known about the habitat preferences of ocean quahog, >99% (approximately 2,130 km²) of the seabed habitats present within the NCMPA are considered suitable for ocean quahog colonisation. The spatial scale of the potential effects associated with the Draft Plan activities are assessed as minor given E1C is located approximately 40 m from the NCMPA and the changes in suspended sediment concentrations are likely to be of a localised and temporary nature. Ocean quahog is not sensitive to siltation rate changes (light). Taking account of the indicative assessment criteria in Table 2, the overall magnitude of the potential effects on structure and function is assessed as minor. In summary, the Draft Plan activities do not represent a significant risk of hindering the ability to conserve the structure and function of this feature within the NCMPA.</p>	
	<p>In terms of supporting processes, activities must look to avoid, as far as is practicable, exceeding EQS as well as change in substrate extent and distribution.</p>	<p>Pollution events associated with support vessels during construction and operational phases have the potential to affect ocean quahog.</p> <p>Pollution releases from the construction or decommissioning of the wind farms and associated intra array cable installation due to seabed/ground disturbances and resuspension of sediments that may be contaminated are considered temporary and likely to have a relatively limited effect, with the level of effect dependent on the level of contamination within the sediment.</p> <p>Use of antifoulants or <i>in situ</i> cleaning of support vessels and marine infrastructure has the potential to result in pollution releases but these are anticipated to be temporary and relatively localised.</p>	

		<p>Although the potential contamination effects within the NCMPA as a result of the Draft Plan activities are considered to be temporary and are likely to be relatively localised, given the uncertainty in the current level of contamination within the sediments and the potential sensitivity of ocean quahog to these pressures, the overall magnitude of the potential effects on supporting processes is assessed as moderate on a precautionary basis. In summary, there is the potential for the supporting processes that operate at this site to be significantly hindered by the Draft Plan activities with respect to supporting the presence of ocean quahog.</p>	
<p>Assessment of shelf banks and mounds in view of conservation objectives:</p>			
<p>Site Specific Advice</p>		<p>Assessment of risk from identified effect mechanisms</p>	
<p>The extent and distribution of shelf banks and mounds in the site should be conserved.</p>		<p>The nearest shelf banks and mounds protected within this site are located more than 10 km from E1C (Figure 7). There is therefore no potential for the extent and distribution of shelf banks and mounds to be affected by the Draft Plan activities. In summary, the Draft Plan activities represent no risk of significantly hindering the ability to conserve the extent and distribution of this feature within the NCMPA.</p>	
<p>The structure and function of shelf banks and mounds in the site should be conserved.</p>		<p>As noted above, the protected feature is located more than 10 km from E1C. There is therefore no potential for the structure and function of shelf banks and mounds to be affected by the Draft Plan activities. In summary, the Draft Plan activities represent no risk of significantly hindering the ability to conserve the structure and function of this feature within the NCMPA.</p>	

<p>In terms of supporting processes, the prevailing hydrodynamic regime should be maintained.</p>	<p>As noted above, the protected feature is located more than 10 km from E1C. There is therefore no potential for changes to hydrodynamics caused by the development of offshore wind in E1C and associated inter array cables to affect the prevailing sediment transport and physical processes. In summary, the Draft Plan activities represent no risk of significantly hindering the ability to conserve the supporting processes of shelf banks and mounds within the NCMPA.</p>
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Assessment of Wee Bankie Key Geodiversity Area in view of conservation objectives:

Site Specific Advice	Assessment of risk from identified effect mechanisms
<p>The extent and distribution of moraines representative of the Wee Bankie Key Geodiversity Area in the site should be conserved.</p>	<p>The nearest moraines protected within this site are located more than 20 km from E1C (Figure 7). There is therefore no potential for the extent and distribution of moraines representative of the Wee Bankie Key Geodiversity Area to be affected by the Draft Plan activities. In summary, the Draft Plan activities represent no risk of significantly hindering the ability to conserve the extent and distribution of this feature within the NCMPA.</p>
<p>Activities which result in the sub-surface abrasion, penetration or physical removal of unconsolidated material from the moraines are kept to a minimum so that the structure and function of moraines representative of the Wee Bankie Key Geodiversity Area is maintained.</p>	<p>As noted above, the protected feature is located more than 20 km from E1C. There is therefore no potential for the structure and function of moraines representative of the Wee Bankie Key Geodiversity Area to be affected by the Draft Plan activities. In summary, the Draft Plan activities represent no risk of significantly hindering the ability to conserve the structure and function of this feature within the NCMPA.</p>

Part E: Risk to the achievement of the conservation objectives

E1: Risk to the achievement of the conservation objectives for each protected feature

Taking each protected feature in turn, and with reference to D1, is the achievement of the conservation objectives hindered by the effects/impacts associated with Draft Plan activities and make the judgement in the absence of mitigation measures.

Offshore subtidal sands and gravels	In the absence of any mitigation measures, the potential effects associated with the Draft Plan activities could significantly hinder the achievement of conservation objectives in respect of the supporting processes of the offshore subtidal sands and gravels within the site. The effects could, in turn, significantly hinder the achievement of the overarching conservation objective to ensure that the protected feature so far as already in favourable condition, remain in such condition, or so far as not already in favourable condition, be brought into such condition, and remain in such condition.
Ocean quahog aggregations	In the absence of any mitigation measures, the potential effects associated with the Draft Plan activities could significantly hinder the achievement of conservation objectives in respect of the supporting processes of the ocean quahog within the site. The effects could, in turn, significantly hinder the achievement of the overarching conservation objective to ensure that the protected feature so far as already in favourable condition, remain in such condition, or so far as not already in favourable condition, be brought into such condition, and remain in such condition.
Shelf banks and mounds	Draft Plan activities will not significantly hinder the achievement of conservation objectives in respect of the extent and distribution, structure and function, and supporting processes of shelf banks and mounds within the site. In other words, the Draft Plan activities will not significantly hinder the achievement of the overarching conservation objective to ensure that the protected feature so far as already in favourable condition, remain in such condition, or so far as not already in favourable condition, be brought into such condition, and remain in such condition.
Wee Bankie Key Geodiversity Area	Draft Plan activities will not significantly hinder the achievement of conservation objectives in respect of the extent and distribution, structure and function, and supporting processes of moraines representative of the Wee Bankie Key Geodiversity Area within the site. In other words, the Draft Plan activities will not significantly hinder the achievement of the overarching conservation objective to ensure that the protected feature so far as already in favourable condition, remain in such condition, or so far as not already in favourable condition, be brought into such condition, and remain in such condition.

E2: Risk to the achievement of the conservation objectives for each Draft Plan activity.

Taking each Draft Plan activity from B2 in turn, consider if the achievement of the conservation objectives for the site is hindered by the activity within the site. For each Draft Plan activity identify the features and impact mechanisms of concern from C3 and make the judgement in the absence of mitigation measures.

Offshore wind: Construction	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [offshore subtidal sands and gravels; ocean quahog aggregations] from a range of potential effects [1, 3, 4, 5, 6, 7 and 9– see C2].
Offshore wind: Decommissioning	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [offshore subtidal sands and gravels; ocean quahog aggregations] from a range of potential effects [1, 3, 4, 5, 6, 7 and 9– see C2].
Offshore wind: Operation and maintenance	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [offshore subtidal sands and gravels; ocean quahog aggregations] from a range of potential effects [1, 3, 4, 5, 6, 7 and 9– see C2].
Power cable: Laying, burial and protection	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [offshore subtidal sands and gravels; ocean quahog aggregations] from a range of potential effects [1, 3, 4, 5, 6, 7 and 9– see C2].
Power cable: Operation and maintenance	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [offshore subtidal sands and gravels; ocean quahog aggregations] from a range of potential effects [1, 3, 4, 5, 6, 7 and 9– see C2].
Power cable: Decommissioning	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [offshore subtidal sands and gravels; ocean quahog aggregations] from a range of potential effects [1, 3, 4, 5, 6, 7 and 9– see C2].

Part F: Taking account of mitigation measures

Is it possible to secure and implement mitigation measures that would enable it to be possible to conclude that the Draft Plan activities do not hinder the achievement of the conservation objectives.

Supporting processes of	As part of the marine licensing process there is a requirement to produce environmental management plans, marine pollution management contingency plans and/or pollution prevention plans to mitigate the effects of any pollution releases. Significant releases are only likely to be associated with emergency events, which are
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protected features within the site	<p>considered unlikely. Site specific surveys undertaken as part of project level assessments will confirm the presence and need to avoid contaminated sediments. The assessment and management of pollution risks will be undertaken at a project level.</p> <p>In order to reduce impacts to benthic habitats by reducing the potential for seabed damage, use of low noise alternatives to high order detonations (e.g. low order deflagration) will be prioritised when developing protocols to clear UXOs in line with latest UK Government joint position statement⁶⁶.</p> <p>The implementation of these mitigation measures will ensure that the Draft Plan activities will not significantly hinder the achievement of the conservation objective to conserve the supporting processes of offshore subtidal sands and gravels or conserve the supporting processes of ocean quahog aggregations.</p>
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Part G: In-combination effects

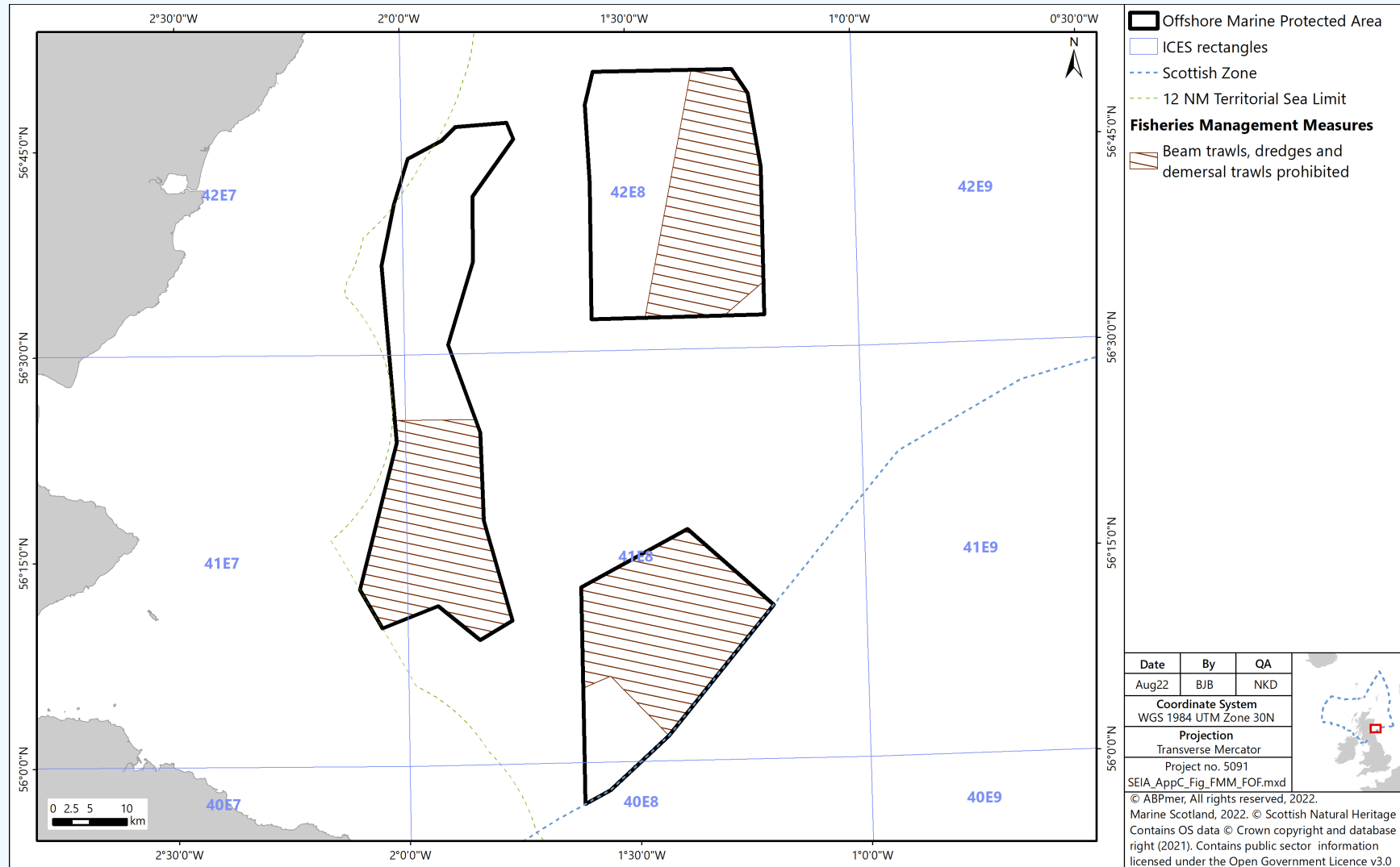
Is it possible to conclude that the Draft Plan activities do not hinder the achievement of the conservation objectives in-combination with other plans and projects taking account of any addition mitigation measures as necessary.

The proposed fisheries management measures for offshore MPAs, including Firth of Forth Banks Complex NCMPA⁶⁷, that have recently been assessed and consulted on could potentially interact with the Draft Plan. Either zonal (Option 1) or full site (Option 2) management measures are being proposed at this site. The zonal (Option 1) management measures are for beam trawls, demersal trawls and dredges to be prohibited from zones within the site (Figure 7). The proposed zonal (Option 1) management measures have been focused around the distribution of ocean quahog aggregations. In doing so, a proportion of each offshore subtidal sand and gravel biotope is included in these zones. Seine net operations would have little or no effect on the habitats and therefore no management is proposed for that gear type. The same is true for static gears. By managing a proportion of each biotope of the sands and gravels habitat, then condition is likely to improve upon removal of fishing pressure. Therefore, the site will be moving towards achieving its conservation objectives. The proposed full site (Option 2) management measures are for all demersal mobile gears and demersal static gears to be prohibited throughout the site.

⁶⁶ UK Government (2025) Policy paper Marine Environment: unexploded ordnance clearance joint position statement. [online] Available at: [Marine environment: unexploded ordnance clearance Joint Position Statement - GOV.UK](#) (accessed 21/03/2025)

⁶⁷ Scottish Government (2024) Fisheries Management Measures within Scottish Offshore Marine Protected Areas (MPAs) - Site Proposal Document [online] Available at: [10. Firth of Forth Banks Complex MPA - Fisheries Management Measures within Scottish Offshore Marine Protected Areas \(MPAs\) - Site Proposal Document - gov.scot](#) (accessed 01/11/2024).

Figure 8. Proposed zonal (Option 1) management measures in Firth of Forth Banks Complex Nature Conservation Marine Protected Area



If implemented, the proposed zonal (Option 1) management measures at Firth of Forth Banks Complex NCMPA that have been consulted on are assessed as having an overall major beneficial effect on the environment and the proposed full site (Option 2) management measures are assessed as having an overall moderate beneficial when taking account of the balance of beneficial and adverse environmental effects⁶⁸. For either option, the overall benefit of protection is likely to be significantly greater than the negative impacts associated with any displacement of fishing and potential change in gear types. Although, the potential effects as a result of the proposed management measures are significant, they are considered unlikely to interact with the Draft Plan.

The potential effects of transmission infrastructure, in terms of the export cable routes for OAs (including E1A), which forms part of the NESO's HND and their HND-FUE work, could also potentially interact with the Draft Plan. Although the export cable routes will be able to avoid the NCMPA, there is the potential for indirect effects on offshore subtidal sands and gravels and ocean quahog to occur. The potential effects associated with power cable laying, burial and protection and power cable operation and maintenance have already been assessed for the Draft Plan above in terms of intra-array cabling and were found not to hinder the achievement of the conservation objectives when mitigation measures are taken into account.

There is also the potential for in-combination effects on offshore subtidal sands and gravels and ocean quahog as a result of operational wind projects and associated cables, such as from Berwick Bank, Seagreen 1 and Seagreen 1A. The project level NCMPA Assessments undertaken for Berwick Bank Offshore Wind Farm⁶⁹ and its associated export cable connection⁷⁰ both concluded that there is considered to be no significant risk of hindering the achievement of conservation objectives for the Firth of

⁶⁸ Scottish Government (2024) Fisheries Management Measures within Scottish Offshore Marine Protected Areas (MPAs) - Strategic Environmental Assessment Environmental Report [online] Available at: [Supporting documents - Fisheries Management Measures within Scottish Offshore Marine Protected Areas \(MPAs\) - Strategic Environmental Assessment Environmental Report - gov.scot](#) (accessed 13/01/2025).

⁶⁹ SSE Renewables (2025) Berwick Bank Wind Farm EIA Document Download Page [online] Available at: [BERWICK BANK WIND FARM EIA Documents](#) (accessed 28/02/2025).

⁷⁰ SSE Renewables (2023) Cambois Connection – Marine Scheme MPA and MCZ Assessment [online] Available at: [mpa_mcz_assessment.pdf](#) (accessed 28/02/2025).

Forth Banks Complex MPA either alone or in-combination with relevant cumulative projects, including other offshore wind farms and export cable corridors. There was no assessment of the Firth of Forth Banks Complex NCMPA undertaken for Seagreen 1 Offshore Wind Farm or its export cable. The EIA for the Seagreen 1A Offshore Wind Farm export cable considered the Firth of Forth Banks Complex NCMPA and concluded that it is not capable of being affected, other than insignificantly, by the project⁷¹.

The implementation of additional mitigation measures will ensure that the Draft Plan activities will not significantly hinder the achievement of conservation objectives either alone or in-combination with other plans and projects.

Part H: Recording the outcome of the assessment

Record the overall assessment conclusion for each site considered within this template.

Provided that the mitigation measures identified as necessary are secured and implemented, the Draft Plan activities will not significantly hinder the achievement of the conservation objectives of Firth of Forth Banks Complex NCMPA.

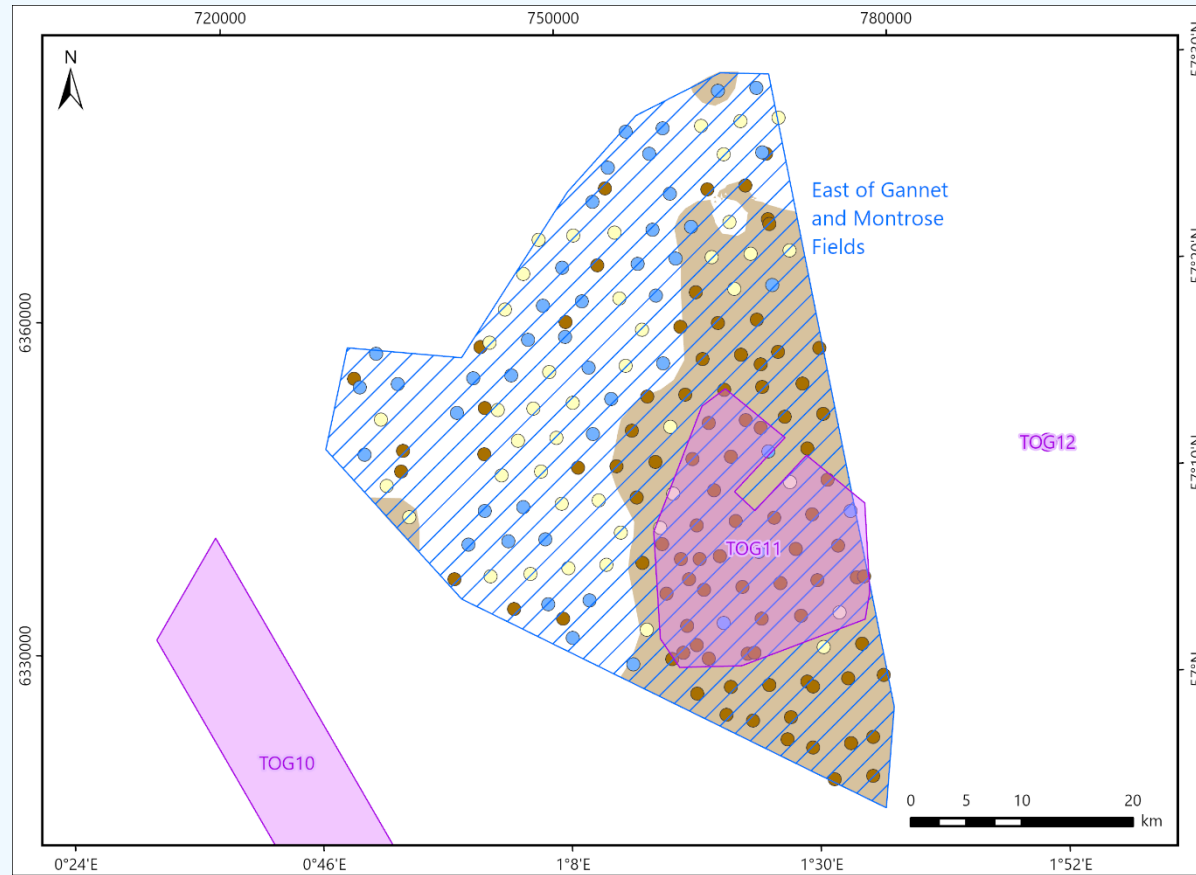
Table 7. Nature Conservation Marine Protected Area Assessment table for East of Gannet and Montrose Fields Nature Conservation Marine Protected Area







East of Gannet and Montrose Fields NCMPA

Part A: General Site information	
A1. Site Name	East of Gannet and Montrose Fields NCMPA.

⁷¹ Seagreen 1A (2021). Seagreen 1A Export Cable Corridor Environmental Impact Assessment Report [online] Available at: [EIA_Report-Volume_1-Main_Text.pdf](#) (accessed 20/03/2025)

Figure 9. Map of East of Gannet and Montrose Fields Nature Conservation Marine Protected Area and Option Area



	Option Area		Offshore deep sea muds		Subtidal sands and gravels
	Nature Conservation Marine Protected Area		Ocean quahog aggregations		Subtidal muds

Date	By	QA
Dec 24	ASW	NKD
Coordinate System		
WGS 1984 UTM Zone 30N		
Projection		
Transverse Mercator		
Project No. 5466		
East_of_Gannet_A5		

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 Contains survey data collated by Scottish Natural Heritage/NatureScot and JNCC. Contains JNCC, NatureScot, and UKHO data © copyright and database right 2020.

	A map of the site and distribution of features is also available to view on MPA Mapper JNCC - Adviser to Government on Nature Conservation ⁷² .
A2. Protected features	<ul style="list-style-type: none"> • Offshore deep sea muds; and • Ocean quahog aggregations (including sands and gravels as their supporting habitat).
A3. Overarching Conservation Objectives	<p>The Conservation Objectives for the East of Gannet and Montrose Fields NCMPA are that the protected features⁷³:</p> <ul style="list-style-type: none"> • so far as already in favourable condition, remain in such condition; and • so far as not already in favourable condition, be brought into such condition, and remain in such condition. <p>The current condition of protected features⁷⁴ is as follows:</p> <ul style="list-style-type: none"> • Offshore deep sea muds – Unfavourable; and • Ocean quahog aggregations (including sands and gravels as their supporting habitat) – Unfavourable.

⁷² JNCC (undated) MPA Mapper [online] Available at: [MPA Mapper | JNCC - Adviser to Government on Nature Conservation](#) (accessed 01/11/2024).

⁷³ JNCC (2024) Conservation Objectives for East of Gannet and Montrose Fields NCMPA [online] Available at: [Conservation Objectives for East of Gannet and Montrose Fields NCMPA](#) (accessed 01/11/2024).

⁷⁴ JNCC (2020) Statements on Conservation Benefits, Condition & Conservation Measures for East of Gannet and Montrose Fields Nature Conservation MPA [online] Available at: [Statements on Conservation Benefits, Condition & Conservation Measures for East of Gannet and Montrose Fields NCMPA](#) (accessed 28/02/2025).

	<p>The East of Gannet and Montrose Fields NCMPA protects the full extent of an area of offshore deep-sea mud and therefore protects a coherent, rather than fragmented, example of this habitat⁷⁵. This is one of the few examples of Atlantic-influenced offshore deep sea mud habitats on the continental shelf in the region. Furthermore, East of Gannet and Montrose Fields Nature Conservation MPA is unique in that it is the only NCMPA designated in the northern North Sea region for the protection of offshore deep sea muds. The deep sea muds occur across the south-east half of the MPA, approximately 100 m deep. Ocean quahog are distributed across the entire site, with the supporting habitat for this feature occurring across the north-west half of the MPA.</p>
Part B: Sensitivity of protected features and summary of potential risk	
<p>B1. Pressures that protected features are sensitive to</p>	<p>With reference to Advice on Operations⁷⁶ and other relevant sources of information (e.g. FeAST⁷⁷, PAD⁷⁸, MarESA⁷⁹), the known pressures and feature sensitivities which are potentially of relevance to the Draft Plan activities are as follows:</p> <ul style="list-style-type: none"> • Abrasion/penetration/disturbance of the substrate on and below the surface of the seabed; • Changes in suspended solids (water clarity); • Deoxygenation; • Habitat structure changes – removal of substratum (extraction);

⁷⁵ JNCC (2024) East of Gannet and Montrose Fields MPA [online] Available at: [East of Gannet and Montrose Fields MPA | JNCC - Adviser to Government on Nature Conservation](#) (accessed 28/02/2025).

⁷⁶ JNCC (2024) East of Gannet and Montrose Fields MPA – Conservation Advice [online] Available at: [East of Gannet and Montrose Fields MPA – Conservation Advice | JNCC Resource Hub](#) (accessed 01/11/2024).

⁷⁷ Nature Scot (2024) Feature Activity Sensitivity Tool (FeAST) [online] Available at: [Feature Activity Sensitivity Tool \(FeAST\) | NatureScot](#) (accessed 01/11/2024).

⁷⁸ JNCC (2022) Marine Pressures-Activities Database (PAD) v1.5 [online] Available at: [Marine Pressures-Activities Database \(PAD\) v1.5 | JNCC Resource Hub](#) (accessed 01/11/2024).

⁷⁹ MarLIN (undated) Marine Evidence based Sensitivity Assessment (MarESA) – summary [online] Available at: [Marine Evidence based Sensitivity Assessment \(MarESA\) - summary - MarLIN - The Marine Life Information Network](#) (accessed 01/11/2024).

	<ul style="list-style-type: none"> • Hydrocarbon & PAH contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC; • Physical change (to another seabed/sediment type); • Physical loss (to land or freshwater habitat); • Smothering and siltation rate changes (heavy); • Smothering and siltation rate changes (light); • Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals). Includes those priority substances listed in Annex II of Directive 2008/105/EC; • Transition elements & organo-metal (e.g. TBT) contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC; and • Water flow (tidal current) changes, including sediment transport considerations.
<p>B2. Draft Plan related activities considered capable of affecting the protected features</p>	<p>With reference to Advice on Operations⁸⁰, the following generic activities associated with the Draft Plan are identified as capable of affecting protected features of the site:</p> <ul style="list-style-type: none"> • Offshore wind: Construction; • Offshore wind: Operation and maintenance; • Offshore wind: Decommissioning; • Power cable: Laying, burial and protection; • Power cable: Operation and maintenance; and • Power cable: Decommissioning.

⁸⁰ JNCC (2024) East of Gannet and Montrose Fields MPA – Conservation Advice [online] Available at: [East of Gannet and Montrose Fields MPA – Conservation Advice | JNCC Resource Hub](#) (accessed 01/11/2024).

B3. Other ongoing activities, threats and pressures which are relevant to the baseline conditions at the site	<p>With reference to Supplementary Advice on Conservation Objectives⁸¹, other ongoing/operational activities, or other threats/pressures, which are relevant to the prevailing environmental conditions against which the assessment has been undertaken are as follows:</p> <ul style="list-style-type: none"> • Oil and gas operations; • Cables and pipelines; • Fishing activity (demersal trawling); and • Climate change.
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Part C: Screening of potential effects

C1. Potential effect mechanisms from activities and preliminary screening assessment	With reference to B1, the potential effect mechanisms from Draft Plan activities identified in B2 to protected features are as follows:		
	Potential effect	Offshore deep sea muds	Ocean quahog aggregations (including sands and gravels as their supporting habitat)
	Abrasion/penetration/disturbance of the substrate on and below the surface of the seabed	Y	Y
	Changes in suspended solids (water clarity)	Y	Y

⁸¹ JNCC (2024) Supplementary Advice on Conservation Objectives for East of Gannet and Montrose Fields Nature Conservation MPA [online] Available at: [Supplementary Advice on Conservation Objectives for East of Gannet and Montrose Fields NCMPA](#) (accessed 01/11/2024).

	Deoxygenation	Y	Y
	Habitat structure changes – removal of substratum (extraction)	Y	Y
	Hydrocarbon & PAH contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC	Y	Y
	Physical change (to another seabed/sediment type)	Y	Y
	Physical loss (to land or freshwater habitat)	Y	Y
	Smothering and siltation rate changes (heavy)	Y	Y
	Smothering and siltation rate changes (light)	Y	Y
	Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals). Includes those priority substances listed in Annex II of Directive 2008/105/EC	Y	Y
	Transition elements & organo-metal (e.g. TBT) contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC	Y	Y
	Water flow (tidal current) changes, including sediment transport considerations	Y	Y
C2. Consider whether the achievement of conservation objectives will be hindered	<p>The risk to conservation objectives set out in A3 from the potential effects mechanisms identified in C1 has been evaluated taking account of:</p> <ul style="list-style-type: none"> x) the activities taking place; xi) the likelihood of them taking place in the location of the feature; and xii) the sensitivity of that feature to the impacts. 		

	Potential effect	Risk to conservation objectives for Offshore deep sea muds	Risk to conservation objectives for Ocean quahog aggregations (including sands and gravels as their supporting habitat)
	<p>1. Abrasion/penetration/disturbance of the substrate on and below the surface of the seabed.</p> <p>This pressure is associated with Draft Plan activities such as compression of sediment (piling), moorings (chains), bed preparation, dredging and cable burial (ploughing or jetting).</p>	<p>Significant risk. Deep sea muds have a ranging sensitivity to surface abrasion from not sensitive to high. The degree to which particular examples of the habitat is sensitive to the pressure will be dependent on the species present.</p>	<p>Significant risk. Ocean quahog has a thick, solid and heavy shell but despite this is known to be vulnerable to physical abrasion. The damage to this species is related to their body size, with larger specimens being more affected than smaller ones. Ocean quahog are thought to have no resistance to the pressure and low resilience and hence a high sensitivity score is given.</p>
	<p>2. Changes in suspended solids (water clarity).</p> <p>This pressure is associated with Draft Plan activities such as dredging and seabed preparation.</p>	<p>No significant risk. Feature is found in the deep sea and will therefore not be exposed to changes in water clarity.</p>	<p>No significant risk. Ocean quahog does not require light and therefore is not sensitive to changes in water clarity.</p>
	<p>3. Deoxygenation.</p> <p>This pressure is associated with Draft Plan activities such as dredging and seabed preparation.</p>	<p>No significant risk. The physical habitat 'Deep sea muds' is not sensitive to deoxygenation. While characterising species may be sensitive to deoxygenation, it is</p>	<p>No significant risk. Ocean quahog have shown to be tolerant to severe decreases in oxygen levels with an immediate recovery as respiration rates should return</p>

		assumed that compliance with relevant water quality standards will mean that characterising features will not be exposed to the pressure benchmark.	to normal within 20 hours, on returning to normal conditions. In addition, it is assumed that the existing environmental quality standards (EQS) will mean the feature is not exposed to the pressure benchmark.
	<p>4. Habitat structure changes – removal of substratum (extraction).</p> <p>This pressure is associated with Draft Plan activities such as dredging and seabed preparation.</p>	Significant risk. Deep sea muds are considered to have a high sensitivity to this pressure.	Significant risk. Removal of the substratum would remove the entire population of this species and so ocean quahog are thought to have no tolerance to the pressure and a low recovery potential, hence a high sensitivity.
	<p>5. Hydrocarbon & PAH contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC.</p> <p>These compounds have a potential to originate from accidental oil spills associated with support vessels and disturbance of sediments as a result of the Draft Plan activities that have been contaminated by oil and gas drilling activities.</p>	Significant risk. Deep sea muds are considered to be sensitive to this pressure.	Significant risk. Ocean quahog is considered to be sensitive to this pressure.

	<p>6. Physical change (to another seabed/sediment type).</p> <p>This pressure is associated with Draft Plan activities such as the installation of infrastructure (e.g. wind farm foundations and cables), the placement of scour protection where soft sediment habitats are replaced by hard/coarse substratum habitats, capital dredging where the residual sedimentary habitat differs structurally from the pre-dredge state, and the protection of cables using rock dumping and matting techniques.</p>	<p>Significant risk. Deep sea muds are considered to have a high sensitivity to the pressure.</p>	<p>Significant risk. A change in habitat type may result in the habitat being unsuitable and ocean quahog is considered as having a high sensitivity to physical change to another seabed habitat type.</p>
	<p>7. Physical loss (to land or freshwater habitat).</p> <p>This pressure is associated with Draft Plan activities located inshore and close to the coastline such as storage, construction and maintenance of devices.</p>	<p>No significant risk. Feature is found in the deep sea and will therefore not be exposed to pressure.</p>	<p>No significant risk. Feature is found in the deep sea and will therefore not be exposed to pressure.</p>
	<p>8. Smothering and siltation rate changes (heavy).</p> <p>This pressure is associated with Draft Plan activities such as dredging,</p>	<p>Significant risk. Deep sea muds have a ranging sensitivity to smothering and siltation rate changes (heavy) from not sensitive to high. The degree to which particular examples of the habitat is sensitive to the</p>	<p>Significant risk. Although ocean quahog burrow into the sediment, they use a short inhalant siphon which sits above the sediment surface for feeding and respiration. The feature is thought to have no</p>

	<p>construction activities and cable burial (ploughing or jetting).</p>	<p>pressure will be dependent on the species present. Although the risk to conservation objectives may be variable, it is assumed to be significant on a precautionary basis.</p>	<p>tolerance and low recovery to the pressure and therefore a high sensitivity.</p>
	<p>9. Smothering and siltation rate changes (light).</p> <p>This pressure is associated with Draft Plan activities such as dredging, construction activities and cable burial (ploughing or jetting).</p>	<p>Significant risk. Deep sea muds have a ranging sensitivity to smothering and siltation rate changes (heavy) from not sensitive to high. The degree to which particular examples of the habitat is sensitive to the pressure will be dependent on the species present. Although the risk to conservation objectives may be variable, it is assumed to be significant on a precautionary basis.</p>	<p>No significant risk. Ocean quahog is not sensitive to siltation rate changes (light).</p>
	<p>10. Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals). Includes those priority substances listed in Annex II of Directive 2008/105/EC.</p> <p>Possible sources as a result of development within Draft Plan OAs include dredging and other activities that may disturb contaminated sediment.</p>	<p>No significant risk. Deep sea sediments are unlikely to be contaminated and therefore will not be exposed to pressure.</p>	<p>No significant risk. Deep sea sediments are unlikely to be contaminated and therefore ocean quahog will not be exposed to pressure.</p>

	<p>11. Transition elements & organo-metal (e.g. TBT) contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC.</p> <p>Sediments contaminated by oil and gas drilling activities (drill fluids can contain certain metals) have the potential to be disturbed as a result of development within Draft Plan OAs by dredging and other activities.</p>	<p>Significant risk. Deep sea muds are considered to be sensitive to this pressure. In the absence of site specific contamination data, on a precautionary basis, it is assumed that the risk to conservation objectives is significant.</p>	<p>Significant risk. Ocean quahog is considered to be sensitive to this pressure. In the absence of site specific contamination data, on a precautionary basis, it is assumed that the risk to conservation objectives is significant.</p>
	<p>12. Water flow (tidal current) changes, including sediment transport considerations.</p> <p>Possible sources as a result of the Draft Plan activities include the introduction of new structures that alter flow speed and direction (e.g. offshore wind turbines and substation platforms) and capital dredging.</p>	<p>No significant risk. Feature is found in the deep sea and will therefore not be exposed to pressure.</p>	<p>No significant risk. Feature is found in the deep sea and ocean quahog is not sensitive to water flow changes.</p>

C3. Screening results	Taking account of prevailing environmental conditions (B3), Draft Plan activities (B2) have the potential to hinder the achievement of the conservation objectives for the site through the following potential effects (C2):		
	Activity	Offshore deep sea muds	Ocean quahog aggregations (including sands and gravels as their supporting habitat)
	Offshore wind: Construction	1, 4, 5, 6, 8, 9, 11	1, 4, 5, 6, 8, 11
	Offshore wind: Operation and maintenance	1, 4, 5, 6, 8, 9, 11	1, 4, 5, 6, 8, 11
	Offshore wind: Decommissioning	1, 4, 5, 6, 8, 9, 11	1, 4, 5, 6, 8, 11
	Power cable: Laying, burial and protection	1, 4, 5, 6, 8, 9, 11	1, 4, 5, 6, 8, 11
	Power cable: Operation and maintenance	1, 4, 5, 6, 8, 9, 11	1, 4, 5, 6, 8, 11
	Power cable: Decommissioning	1, 4, 5, 6, 8, 9, 11	1, 4, 5, 6, 8, 11
Part D: Assessment			
D1. Summary of preliminary risk assessment against conservation objectives	With reference to conservation objectives (A3) and outcomes of screening assessment above (C3), the following conservation objective components are at risk from the potential effects that have been screened into the assessment (C2):		

Favourable condition component	Offshore deep sea muds	Ocean quahog aggregations (including sands and gravels as their supporting habitat)
Extent is stable or increasing	4, 6	NA
Structures and functions, its quality, and the composition of its characteristic biological communities are such as to ensure that it is in a condition which is healthy and not deteriorating	1, 4, 5, 6, 8, 9, 11	NA
The quality and quantity of its habitat and the composition of its population in terms of number, age and sex ratio are such that they ensure that the population is maintained in numbers which enable it to thrive	NA	1, 4, 5, 6, 8, 11

<p>D2. Review of site specific advice</p>	<p>With reference to conservation objectives (A3), the following feature specific ‘site specific advice’ statements for each feature as summarised in D1 has been extracted from the Supplementary Advice on Conservation Objectives⁸²:</p> <p>Offshore deep sea muds</p> <p>Installation and/or removal of infrastructure will have a continuing effect on extent and distribution. As such, JNCC advise a recover objective. This is based on expert judgment. Activities must look to minimise, as far as is practicable, changes in substrata and the biological communities associated with offshore deep sea muds within the site in order to minimise further impact of the feature’s extent and distribution.</p> <p>JNCC understands that the site has been subject to activities that have resulted in a change to the structure and function of the feature within the site. As such, JNCC advise a recover objective. This is based on expert judgement. Activities must look to minimise, as far as is practicable, changes in substrata and the biological communities associated with offshore deep sea muds within the site in order to minimise further impact of the feature’s structure and function.</p> <p>There is limited evidence to suggest that supporting processes that operate at this site are being impeded with respect to supporting the presence of offshore deep sea muds. As such, JNCC advise a conserve objective. This is based on expert judgement. Activities must look to avoid, as far as is practicable, exceeding EQS for contaminants from industry activities within, or in close proximity to, the site.</p> <p>Ocean quahog aggregations (including sands and gravels as their supporting habitat)</p> <p>The feature is being exposed to pressures associated with demersal mobile gear and offshore industries which can impact the feature’s extent and distribution and structure and function. Evidence indicates that activities that are capable of impacting the ocean quahog aggregations feature occurring within the site, most notably demersal trawling as it can cause damage, displacement and mortality to ocean quahog. JNCC</p>
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⁸² JNCC (2024) East of Gannet and Montrose Fields MPA – Conservation Advice [online] Available at: [East of Gannet and Montrose Fields MPA – Conservation Advice | JNCC Resource Hub](#) (accessed 01/11/2024).

	<p>advise a recover objective for the feature’s extent and distribution and structure and function based on expert judgement. To provide the best chance of any potential settlement for new recruits and to retain existing individuals, activities should look to minimise, as far as is practicable, disturbance to the existing individuals that may result in a change to the extent and distribution of ocean quahog aggregations within the site and changes in substrata that may result in a change to the natural extent of the ocean quahog’s supporting habitat.</p> <p>There is limited evidence to suggest that supporting processes are being impeded with respect to supporting the ocean quahog aggregations within the site. This is with the exception of supporting habitat, where evidence suggests that the introduction of hard substrata associated with industry activities may have reduced the availability of suitable seabed substrate for ocean quahog colonisation. As such, JNCC advise a recover objective for this attribute and advise that activities must look to avoid, as far as is practicable, exceeding EQS, as well as change in substrate extent and distribution.</p>				
<p>D3. Detailed risk assessment against conservation objectives</p>	<p>Assessment of offshore deep sea muds in view of conservation objectives:</p> <table border="1" data-bbox="495 805 1989 1254"> <thead> <tr> <th data-bbox="495 805 1025 863">Site Specific Advice</th> <th data-bbox="1025 805 1989 863">Assessment of risk from identified effect mechanisms</th> </tr> </thead> <tbody> <tr> <td data-bbox="495 863 1025 1254"> <p>Activities must look to minimise, as far as is practicable, changes in substrata and the biological communities associated with offshore deep sea muds within the site in order to minimise further impact of the feature’s extent and distribution</p> </td> <td data-bbox="1025 863 1989 1254"> <p>OA (TOG11) is located within the East of Gannet and Montrose Fields NCMPA and will directly overlap an area of offshore deep sea muds (see Figure 9).</p> <p>Based on the latest available information, TOG11 will involve the installation of 68 - 95 turbines with each turbine having a generating capacity equal or greater than 15 MW⁸³. The proposed foundation type is floating wind. Both semi-submersible and TLP foundation designs are being considered, with up to nine mooring lines per platform with a mooring line radius of up to approximately 850 m. These will be made of steel chain, steel</p> </td> </tr> </tbody> </table>	Site Specific Advice	Assessment of risk from identified effect mechanisms	<p>Activities must look to minimise, as far as is practicable, changes in substrata and the biological communities associated with offshore deep sea muds within the site in order to minimise further impact of the feature’s extent and distribution</p>	<p>OA (TOG11) is located within the East of Gannet and Montrose Fields NCMPA and will directly overlap an area of offshore deep sea muds (see Figure 9).</p> <p>Based on the latest available information, TOG11 will involve the installation of 68 - 95 turbines with each turbine having a generating capacity equal or greater than 15 MW⁸³. The proposed foundation type is floating wind. Both semi-submersible and TLP foundation designs are being considered, with up to nine mooring lines per platform with a mooring line radius of up to approximately 850 m. These will be made of steel chain, steel</p>
Site Specific Advice	Assessment of risk from identified effect mechanisms				
<p>Activities must look to minimise, as far as is practicable, changes in substrata and the biological communities associated with offshore deep sea muds within the site in order to minimise further impact of the feature’s extent and distribution</p>	<p>OA (TOG11) is located within the East of Gannet and Montrose Fields NCMPA and will directly overlap an area of offshore deep sea muds (see Figure 9).</p> <p>Based on the latest available information, TOG11 will involve the installation of 68 - 95 turbines with each turbine having a generating capacity equal or greater than 15 MW⁸³. The proposed foundation type is floating wind. Both semi-submersible and TLP foundation designs are being considered, with up to nine mooring lines per platform with a mooring line radius of up to approximately 850 m. These will be made of steel chain, steel</p>				

⁸³ Scottish Government (2024) Marine Directorate - Licensing Operations Team Scoping Opinion Cenos Offshore Windfarm [online] Available at: [SCOP-0044 - Cenos Offshore Wind Farm - Scoping Opinion - September 2024](#) (accessed 21/11/2024)

		<p>rope, polymer rope, steel tubes or a combination of different types. Mooring systems included are catenary, taut, semi-taut and tension.</p> <p>There is potential for the permanent physical change (to another seabed/sediment type) of small discrete areas of seabed habitat from the placement of gravity anchors into the seabed and temporary abrasion/penetration/disturbance of the substrate on and below the surface of the seabed to habitats from intra array cables and radial connections to offshore installations for which the project is supplying power to. Any chains, wire and weights attaching the floating structures to the seafloor may have an effect over a much wider area and could be a continual potential source of seabed disturbance during operation. There are also potential effects from the use of cable protection, such as rock dumping and concrete mattresses, which would result in a permanent loss or change of habitat. JNCC has advised that the introduction of substratum into naturally muddy seabed is not fully understood at present.</p> <p>The total area of the NCMPA is 1,839 km², with offshore deep-sea muds comprising 49% (approximately 900 km²) of the seabed. The spatial scale of the potential effects associated with the Draft Plan activities are assessed as medium to large given TOG11 covers an area approximately 331 km² which directly overlaps this protected habitat. The sensitivity of deep sea muds to these effects can be high. Taking account of the indicative assessment criteria in Table 2, the overall magnitude of the potential effects on extent and distribution is assessed as major. In summary, the Draft Plan activities represent a significant risk of hindering the ability to recover the extent and distribution of this feature within the NCMPA.</p>	
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	<p>Activities must look to minimise, as far as is practicable, changes in substrata and the biological communities associated with offshore deep sea muds within the site in order to minimise further impact of the feature's structure and function.</p>	<p>As noted above, there is potential for the permanent physical change (to another seabed/sediment type) of small discrete areas of seabed habitat from the placement of gravity anchors into the seabed and temporary abrasion/penetration/disturbance of the substrate on and below the surface of the seabed to habitats from intra array cables and radial connections to offshore installations for which the project is supplying power to. Any chains, wire and weights attaching the floating structures to the seafloor may have an effect over a much wider area and could be a continual potential source of seabed disturbance during operation. There are potential effects from the use of cable protection, such as rock dumping and concrete mattresses, which would result in a localised change in processes due to the presence of a new structure on the seabed. There is also the potential for habitat structure changes as a result of the removal of substratum (extraction) and smothering and siltation rate changes (heavy/light) due to activities taking place within the OA such as any dredging and/or seabed preparation that might be required.</p> <p>The total area of the NCMPA is 1,839 km², with offshore deep-sea muds comprising 49% (approximately 900 km²) of the seabed. The spatial scale of the potential effects associated with the Draft Plan activities are assessed as medium to large given TOG11 covers an area approximately 331 km² which directly overlaps this protected habitat. The sensitivity of deep sea muds to these effects can be high. Taking account of the indicative assessment criteria in Table 2, the overall magnitude of the potential effects on structure and function is assessed as major. In summary, the Draft Plan activities are therefore assessed as representing a significant risk of hindering the ability to recover the structure and function of this feature within the NCMPA.</p>	
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	<p>In terms of supporting processes, activities must look to avoid, as far as is practicable, exceeding EQS for contaminants from industry activities within, or in close proximity to, the site.</p>	<p>Pollution events associated with support vessels during construction and operational phases have the potential to affect the habitat feature and supporting species.</p> <p>Pollution releases from the construction or decommissioning of the wind farms and associated intra array cable installation due to seabed/ground disturbances and resuspension of sediments that may be contaminated are considered temporary and likely to have a relatively limited effect, with the level of effect dependent on the level of contamination within the sediment.</p> <p>Use of antifoulants or <i>in situ</i> cleaning of support vessels and marine infrastructure has the potential to result in pollution releases but these are anticipated to be temporary and relatively localised.</p> <p>Although the potential contamination effects within the NCMPA as a result of the Draft Plan activities are considered to be temporary and are likely to be relatively localised, given the uncertainty in the current level of contamination within the sediments and the potential sensitivity of deep sea muds to these pressures, the overall magnitude of the potential effects on supporting processes is assessed as moderate on a precautionary basis. In summary, there is the potential for the supporting processes that operate at this site to be significantly hindered by the Draft Plan activities with respect to supporting the presence of offshore deep sea muds.</p>	
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Assessment of ocean quahog aggregations (including sands and gravels as their supporting habitat) in view of conservation objectives:

Site Specific Advice	Comment on risk from identified effect mechanisms
<p>To provide the best chance of any potential settlement for new recruits and to retain existing individuals, activities should look to minimise, as far as is practicable, disturbance to the existing individuals that may result in a change to the extent and distribution of ocean quahog aggregations within the site and changes in substrata that may result in a change to the natural extent of the ocean quahog's supporting habitat.</p>	<p>OA (TOG11) is located within the East of Gannet and Montrose Fields NCMPA and will directly overlap an area where ocean quahog has been recorded (see Figure 9).</p> <p>Based on the latest available information, TOG11 will involve the installation of 68 - 95 turbines with each turbine having a generating capacity equal or greater than 15 MW ⁸⁴. The proposed foundation type is floating wind. Both semi-submersible and TLP foundation designs are being considered, with up to nine mooring lines per platform with a mooring line radius of up to approximately 850 m. These will be made of steel chain, steel rope, polymer rope, steel tubes or a combination of different types. Mooring systems included are catenary, taut, semi-taut and tension.</p> <p>There is potential for the permanent physical change (to another seabed/sediment type) of small discrete areas of seabed habitat from the placement of gravity anchors into the seabed making the habitat unsuitable for ocean quahog and temporary abrasion/penetration/disturbance of any ocean quahog individuals and supporting habitat on and below the surface of the seabed to habitats from intra array cables and radial connections to offshore installations for which the project is supplying power to. Any</p>

⁸⁴ Scottish Government (2024) Marine Directorate - Licensing Operations Team Scoping Opinion Cenos Offshore Windfarm [online] Available at: [SCOP-0044 - Cenos Offshore Wind Farm - Scoping Opinion - September 2024](#) (accessed 21/11/2024)

		<p>chains, wire and weights attaching the floating structures to the seafloor may have an effect over a much wider area and could be a continual potential source of seabed disturbance during operation. There are also potential effects from the use of cable protection, such as rock dumping and concrete mattresses, which would result in a permanent loss or change of habitat. JNCC has advised that the introduction of substratum into naturally sandy seabed is not fully understood at present.</p> <p>Based on what is known about the habitat preferences of ocean quahog, >99% (approximately 1,839 km²) of the seabed habitats present within the NCMPA are considered suitable for ocean quahog colonisation. The spatial scale of the potential effects associated with the Draft Plan activities are assessed as medium given TOG11 covers an area approximately 331 km² which directly overlaps this protected species. The sensitivity of ocean quahog to these effects can be high. Taking account of the indicative assessment criteria in Table 2, the overall magnitude of the potential effects on extent and distribution is assessed as major. In summary, the Draft Plan activities represent a significant risk of hindering the ability to recover the extent and distribution of this feature within the NCMPA.</p>	
	<p>To provide the best chance of any potential settlement for new recruits and to retain existing individuals, activities should look to minimise, as far as is practicable, disturbance to the ocean quahog aggregations.</p>	<p>As noted above, there is potential for the permanent physical change (to another seabed/sediment type) of small discrete areas of seabed habitat from the placement of gravity anchors into the seabed making the habitat unsuitable for ocean quahog and temporary abrasion/penetration/disturbance of any ocean quahog individuals and supporting habitat on and below the surface of the seabed to habitats from intra array cables and radial connections to offshore installations for which the project is supplying power to. Any chains, wire and weights attaching the floating structures</p>	

		<p>to the seafloor may have an effect over a much wider area and could be a continual potential source of seabed disturbance during operation. There are potential effects from the use of cable protection, such as rock dumping and concrete mattresses, which would result in a localised change in processes due to the presence of a new structure on the seabed. There is also the potential for habitat structure changes as a result of the removal of substratum (extraction) and smothering and siltation rate changes (heavy) to result in the mortality of populations and/or individuals of ocean quahog due to activities taking place within the OA such as any dredging and/or seabed preparation that might be required.</p> <p>Based on what is known about the habitat preferences of ocean quahog, >99% (approximately 1,839 km²) of the seabed habitats present within the NCMPA are considered suitable for ocean quahog colonisation. The spatial scale of the potential effects associated with the Draft Plan activities are assessed as medium given TOG11 covers an area approximately 331 km² which directly overlaps this protected species. The sensitivity of ocean quahog to these effects can be high. Taking account of the indicative assessment criteria in Table 2, the overall magnitude of the potential effects on structure and function is assessed as major. In summary, the Draft Plan activities represent a significant risk of hindering the ability to recover the structure and function of this feature within the NCMPA.</p>	
	<p>In terms of supporting processes, activities must look to avoid, as far as is practicable, exceeding EQS for contaminants from industry</p>	<p>Pollution events associated with support vessels during construction and operational phases have the potential to affect ocean quahog.</p>	

	<p>activities within, or in close proximity to, the site.</p>	<p>Pollution releases from the construction or decommissioning of the wind farms and associated intra array cable installation due to seabed/ground disturbances and resuspension of sediments that may be contaminated are considered temporary and likely to have a relatively limited effect, with the level of effect dependent on the level of contamination within the sediment.</p> <p>Use of antifoulants or <i>in situ</i> cleaning of support vessels and marine infrastructure has the potential to result in pollution releases but these are anticipated to be temporary and relatively localised.</p> <p>Although the potential contamination effects within the NCMPA as a result of the Draft Plan activities are considered to be temporary and are likely to be relatively localised, given the uncertainty in the current level of contamination within the sediments and the potential sensitivity of ocean quahog to these pressures, the overall magnitude of the potential effects on supporting processes is assessed as moderate on a precautionary basis. In summary, there is the potential for the supporting processes that operate at this site to be significantly hindered by the Draft Plan activities with respect to supporting the presence of ocean quahog.</p>	
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<p>Part E: Risk to the achievement of the conservation objectives</p>	
<p>E1: Risk to the achievement of the conservation objectives for each protected feature</p>	
<p>Taking each protected feature in turn, and with reference to D1, is the achievement of the conservation objectives hindered by the effects/impacts associated with Draft Plan activities and make the judgement in the absence of mitigation measures.</p>	
<p>Offshore deep sea muds</p>	<p>In the absence of any mitigation measures, the potential effects associated with the Draft Plan activities could significantly hinder the achievement of conservation objectives in respect of the extent and distribution, structure and function, and supporting processes of the offshore deep sea muds within the site. The effects</p>

	could, in turn, significantly hinder the achievement of the overarching conservation objective to ensure that the protected feature so far as already in favourable condition, remain in such condition, or so far as not already in favourable condition, be brought into such condition, and remain in such condition.
Ocean quahog aggregations (including sands and gravels as their supporting habitat)	In the absence of any mitigation measures, the potential effects associated with the Draft Plan activities could significantly hinder the achievement of conservation objectives in respect of the extent and distribution, structure and function, and supporting processes of the ocean quahog within the site. The effects could, in turn, significantly hinder the achievement of the overarching conservation objective to ensure that the protected feature so far as already in favourable condition, remain in such condition, or so far as not already in favourable condition, be brought into such condition, and remain in such condition.
E2: Risk to the achievement of the conservation objectives for each Draft Plan activity.	
Taking each Draft Plan activity from B2 in turn, consider if the achievement of the conservation objectives for the site is hindered by the activity within the site. For each Draft Plan activity identify the features and impact mechanisms of concern from C3 and make the judgement in the absence of mitigation measures.	
Offshore wind: Construction	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [offshore deep sea muds; ocean quahog aggregations (including sands and gravels as their supporting habitat)] from a range of potential effects [1, 3, 4, 5, 7, 8 and 10 – see C2].
Offshore wind: Decommissioning	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [offshore deep sea muds; ocean quahog aggregations (including sands and gravels as their supporting habitat)] from a range of potential effects [1, 3, 4, 5, 7, 8 and 10 – see C2].
Offshore wind: Operation and maintenance	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [offshore deep sea muds; ocean quahog aggregations (including sands and gravels as their supporting habitat)] from a range of potential effects [1, 3, 4, 5, 7, 8 and 10 – see C2].
Power cable: Laying, burial and protection	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [offshore deep sea muds; ocean quahog aggregations (including sands and gravels as their supporting habitat)] from a range of potential effects [1, 3, 4, 5, 7, 8 and 10 – see C2].
Power cable: Operation and maintenance	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [offshore deep sea muds; ocean quahog aggregations (including sands and gravels as their supporting habitat)] from a range of potential effects [1, 3, 4, 5, 7, 8 and 10 – see C2].

Power cable: Decommissioning	In the absence of mitigation measures, this activity represents a risk to the achievement of the conservation objectives for qualifying features [offshore deep sea muds; ocean quahog aggregations (including sands and gravels as their supporting habitat)] from a range of potential effects [1, 3, 4, 5, 7, 8 and 10 – see C2].
Part F: Taking account of mitigation measures Is it possible to secure and implement mitigation measures that would enable it to be possible to conclude that the Draft Plan activities do not hinder the achievement of the conservation objectives.	
Extent and distribution of protected features within the site	There is no potential to microsite and spatially plan array development to avoid features within TOG11 given the OA directly overlaps the NCMPA and there is only a very small area to the east of TOG11 located outside of the NCMPA (Figure 9). It is therefore not considered possible to avoid either offshore deep sea muds or ocean quahog aggregations (including sands and gravels as their supporting habitat). It is not possible to conclude that the Draft Plan activities will not significantly hinder the achievement of the conservation objective to recover the extent and distribution of protected features (offshore deep sea muds and ocean quahog aggregations (including sands and gravels as their supporting habitat)) within the site.
Structure and function of protected features within the site	There is no potential to microsite and spatially plan array development to avoid features within TOG11 given the OA directly overlaps the NCMPA and there is only a very small area to the east of TOG11 located outside of the NCMPA (Figure 9). It is therefore not considered possible to avoid either offshore deep sea muds or ocean quahog aggregations (including sands and gravels as their supporting habitat). It is not possible to conclude that the Draft Plan activities will not significantly hinder the achievement of the conservation objective to recover the structure and function of protected features (offshore deep sea muds and ocean quahog aggregations (including sands and gravels as their supporting habitat)) within the site.
Supporting processes of protected features within the site	As part of the marine licensing process there is a requirement to produce environmental management plans, marine pollution management contingency plans and/or pollution prevention plans to mitigate the effects of any pollution releases. Significant releases are only likely to be associated with emergency events, which are considered unlikely. Site specific surveys undertaken as part of project level assessments will confirm the presence and need to avoid contaminated sediments. The assessment and management of pollution risks will be undertaken at a project level.

In order to reduce impacts to benthic habitats by reducing the potential for seabed damage, use of low noise alternatives to high order detonations (e.g. low order deflagration) will be prioritised when developing protocols to clear UXOs in line with latest UK Government joint position statement⁸⁵.

The implementation of these mitigation measures will ensure that the Draft Plan activities will not significantly hinder the achievement of the conservation objective to conserve the supporting processes of offshore deep sea muds or recover the supporting processes of ocean quahog aggregations (including sands and gravels as their supporting habitat).

Part G: In-combination effects

Is it possible to conclude that the Draft Plan activities do not hinder the achievement of the conservation objectives in-combination with other plans and projects taking account of any addition mitigation measures as necessary.

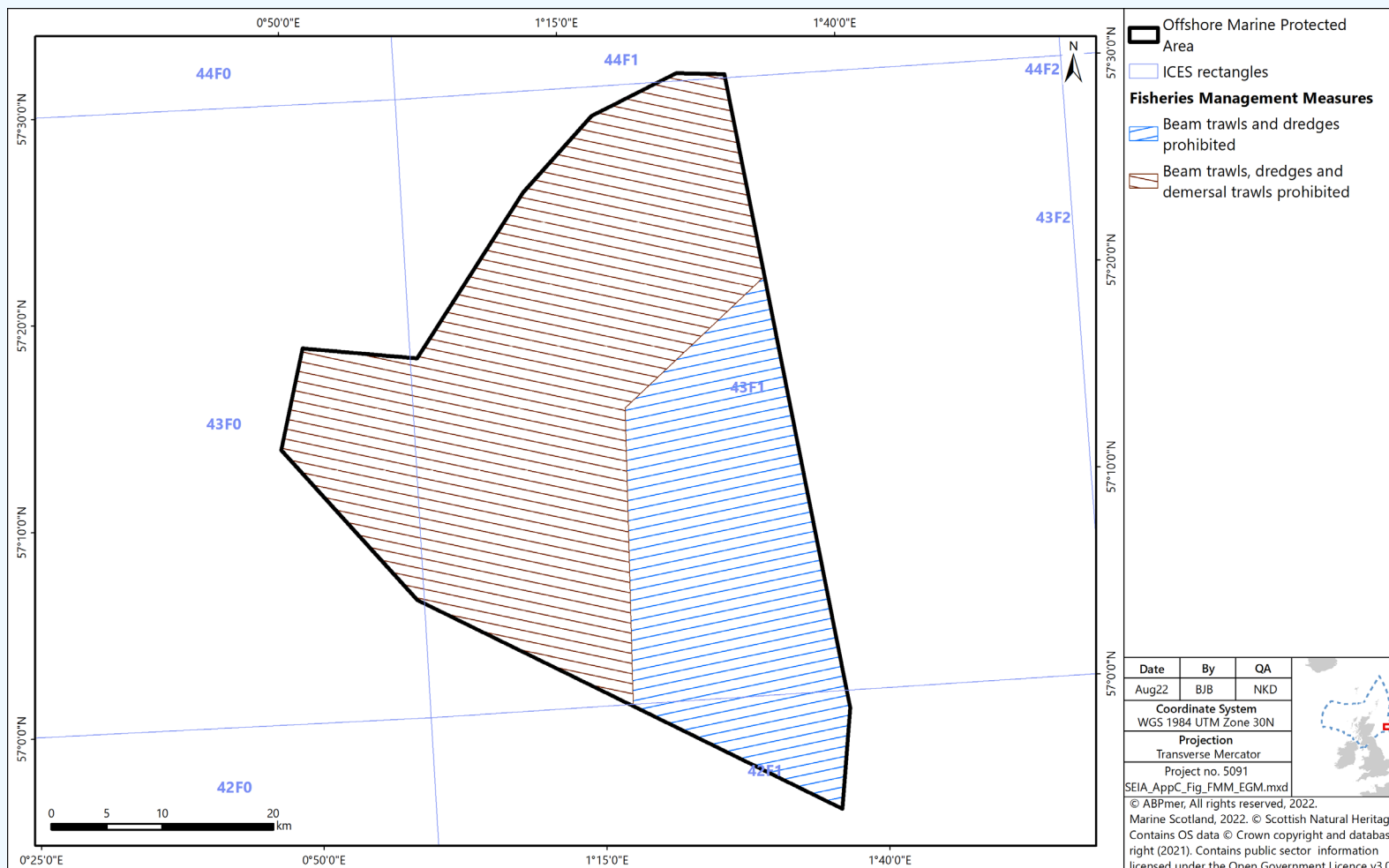
The proposed fisheries management measures for offshore MPAs, including East of Gannet and Montrose Fields NCMPA⁸⁶, that have recently been assessed and consulted on could potentially interact with the Draft Plan. Either zonal (Option 1) or full site (Option 2) management measures are being proposed at this site. The zonal (Option 1) management measures are for beam trawls and dredges to be prohibited from the whole site and demersal trawls to be prohibited from a zone in the north and northeast of the site (Figure 9). The zonal (Option 1) management measures propose a gradient of fisheries management for East of Gannet and Montrose Fields NCMPA. The heaviest fishing gears – beam trawl and dredge – are proposed to be excluded from the full site. Although these gears are not currently utilised in the NCMPA, a precautionary approach is being proposed as they are the gears likely to have a significant impact on the ocean quahog population. A zonal management approach is proposed for demersal mobile trawling which allows access to the main fishing ground within the NCMPA. These gears have a lower impact on ocean quahog than dredge and beam trawling and therefore proportionate management to protect the sedimentary habitats is considered sufficient. Seine net and static gear fisheries are not proposed as part of the zonal (Option 1) management measures due to their lower impact on the protected features meaning they are not considered a threat to

⁸⁵ UK Government (2025) Policy paper Marine Environment: unexploded ordnance clearance joint position statement. [online] Available at: [Marine environment: unexploded ordnance clearance Joint Position Statement - GOV.UK](#) (accessed 21/03/2025)

⁸⁶ Scottish Government (2024) Fisheries Management Measures within Scottish Offshore Marine Protected Areas (MPAs) - Site Proposal Document [online] Available at: [8. East of Gannet and Montrose Fields MPA - Fisheries Management Measures within Scottish Offshore Marine Protected Areas \(MPAs\) - Site Proposal Document - gov.scot](#) (accessed 01/11/2024).

achieving the conservation objectives. The proposed full site (Option 2) management measures are for all demersal mobile and demersal static gears to be prohibited throughout the site.

Figure 10. Proposed zonal (Option 1) management measures in East of Gannet and Montrose Field Nature Conservation Marine Protected Area



If implemented, the proposed zonal (Option 1) management measures at East of Gannet and Montrose Fields NCMPA that have been consulted on are assessed as having an overall minor beneficial effect on the environment and the proposed full site (Option 2) management measures are assessed as having an overall major beneficial impact⁸⁷. On balance, the overall benefit of protection of either option is likely to be greater than the negative impacts associated with displacement of fishing and potential change in gear types. Overall, the potential effects as a result of the proposed management measures are not considered significant and are unlikely to interact with the Draft Plan.

The potential effects of transmission infrastructure, in terms of the export cable routes for the OAs (including TOG11), which forms part of the NESO's HND and their HND-FUE work, could also potentially interact with the Draft Plan. The export cable route for TOG11 may overlap the NCMPA (as TOG11 is almost wholly within the NCMPA) and therefore increase the overall footprint of potential effects associated with power cable laying, burial and protection and power cable operation and maintenance which have already been assessed for the Draft Plan in terms of intra-array cabling above and which were found to have the potential to hinder the achievement of the conservation objectives.

There is also the potential for in-combination effects on protected features as a result of oil and gas infrastructure and operations, as well as decommissioning, pipelines, umbilicals, and associated protection such as rock dumping, which are currently present within the NCMPA. These are ongoing operations that form part of the baseline environment as noted in Part B3 above.

The Draft Plan activities at TOG11 could also result in potential cumulative adverse effects on the carbon storage potential of the offshore deep-sea muds protected feature. Increased disturbance of the seabed through activities at TOG11 has the potential to increase the dissolution of carbon sequestered in offshore deep-sea muds which are carbon rich stores. Any physical damage

⁸⁷ Scottish Government (2024) Fisheries Management Measures within Scottish Offshore Marine Protected Areas (MPAs) - Strategic Environmental Assessment Environmental Report [online] Available at: [Supporting documents - Fisheries Management Measures within Scottish Offshore Marine Protected Areas \(MPAs\) - Strategic Environmental Assessment Environmental Report - gov.scot](#) (accessed 13/01/2025).

caused to this habitat has the potential to disturb, remove or release any carbon held within that store. The disturbance of the seabed as a result of Draft Plan activities has the potential to affect how this habitat regulates atmospheric carbon levels.

At this stage, no additional mitigation measures have been identified that would avoid the Draft Plan activities, acting in-combination with other plans and projects, from significantly hindering the achievement of conservation objectives. In summary, it is not possible to conclude that the Draft Plan activities will not significantly hinder the achievement of conservation objectives either alone or in-combination with other plans and projects.

Part H: Recording the outcome of the assessment

Record the overall assessment conclusion for each site considered within this template.

In light of the findings of the assessment record set out within this template, the Draft Plan activities subject to assessment have the potential to significantly hinder the achievement of the conservation objectives of East of Gannet and Montrose Fields NCMPA.

4 Summary and Conclusions

4.1.1 The NCMPAs that have been screened into the assessment based on the outcomes of the SEA and in line with the approach that has been agreed with NatureScot and JNCC are as follows:

- Norwegian Boundary Sediment Plain NCMPA;
- Turbot Bank NCMPA;
- Firth of Forth Banks Complex NCMPA; and
- East of Gannet and Montrose Fields NCMPA.

4.1.2 An assessment of the impacts of the Draft Plan activities on each of these NCMPAs and protected features both alone and in-combination with others plans and projects has been undertaken, taking account of the relevant conservation objectives and management advice for these features.

4.1.3 The Draft Plan activities will not significantly hinder the achievement of the conservation objectives of Turbot Bank NCMPA and Firth of Forth Banks Complex NCMPA provided that the following project level mitigation measures which have been identified as necessary are secured and implemented:

- Turbot Bank NCMPA
 - Application of JNCC piling protocol, including soft start and ramp-up procedures, to mitigate the risk of physiological damage on sandeels from piling noise;
 - Noise modelling to confirm potential effects on sandeels and level of uncertainty in predictions;
 - Noise abatement measures at source, where feasible and effective to do so, to reduce the input of anthropogenic noise into the environment and potential displacement effects;
 - Prioritise use of low noise alternatives to high order detonations (e.g. low order deflagration) when developing protocols to clear UXOs in line with latest UK Government joint position statement⁸⁸;
 - Hydrodynamic and sediment transport assessments to confirm and validate effects on the seabed sediments and physical processes;
 - Site specific sediment contamination surveys to confirm sediment quality of areas that will be disturbed by Draft Plan activities at E2A and/or along the export cable route; and

⁸⁸ UK Government (2025) Policy paper Marine Environment: unexploded ordnance clearance joint position statement. [online] Available at: [Marine environment: unexploded ordnance clearance Joint Position Statement - GOV.UK](#) (accessed 21/03/2025)

- Environmental management plans, marine pollution management contingency plans and/or pollution prevention plans to mitigate the effects of any pollution releases as part of the marine licensing process;
 - Firth of Forth Banks Complex NCMPA
 - Site specific sediment contamination surveys to confirm sediment quality of areas that will be disturbed by Draft Plan activities at E1C and/or along the export cable route;
 - Environmental management plans, marine pollution management contingency plans and/or pollution prevention plans to mitigate the effects of any pollution releases as part of the marine licensing process; and
 - Prioritise use of low noise alternatives to high order detonations (e.g. low order deflagration) when developing protocols to clear UXOs in line with latest UK Government joint interim position statement⁸⁹.
- 4.1.4 The Draft Plan activities have the potential to significantly hinder the achievement of the conservation objectives of Norwegian Boundary Sediment Plain NCMPA and East of Gannet and Montrose Fields NCMPA both alone and in-combination with other plans and projects.
- 4.1.5 In the case of Norwegian Boundary Sediment Plain NCMPA, although TOG9 overlaps only a small part of the NCMPA (Figure 4), it is considered unlikely to be possible to avoid the protected feature (ocean quahog aggregations (including sands and gravels as their supporting habitat)).
- 4.1.6 In the case of East of Gannet and Montrose Fields NCMPA, TOG11 almost entirely overlaps the NCMPA (Figure 9) and it is therefore not considered possible to avoid the protected features (offshore deep sea muds or ocean quahog aggregations (including sands and gravels as their supporting habitat)).
- 4.1.7 The following project level mitigation measures should be applied as far as possible:
- Norwegian Boundary Sediment Plain NCMPA
 - Site specific sediment contamination surveys to confirm sediment quality of areas that will be disturbed by Draft Plan activities at TOG9 and/or along the export cable route;
 - Environmental management plans, marine pollution management contingency plans and/or pollution prevention plans to mitigate the effects of any pollution releases as part of the marine licensing process; and

⁸⁹ UK Government (2022) Policy paper Marine Environment: unexploded ordnance clearance joint interim position statement. [online] Available at: [Marine environment: unexploded ordnance clearance joint interim position statement - GOV.UK](#) (accessed 01/10/2024)

- Prioritise use of low noise alternatives to high order detonations (e.g. low order deflagration) when developing protocols to clear UXOs in line with latest UK Government joint interim position statement⁹⁰;
- East of Gannet and Montrose Fields NCMPA
 - Site specific sediment contamination surveys to confirm sediment quality of areas that will be disturbed by Draft Plan activities at TOG11 and/or along the export cable route;
 - Environmental management plans, marine pollution management contingency plans and/or pollution prevention plans to mitigate the effects of any pollution releases as part of the marine licensing process; and
 - Prioritise use of low noise alternatives to high order detonations (e.g. low order deflagration) when developing protocols to clear UXOs in line with latest UK Government joint interim position statement⁹¹.

4.1.8 These project level mitigation measures alone will not be able to avoid significantly hindering the achievement of the conservation objectives of Norwegian Boundary Sediment Plain NCMPA and East of Gannet and Montrose Fields NCMPA. In accordance with S126(7) of the Marine and Coastal Access Act 2009⁹², there will be a need to:

- Consider if there are other means of proceeding with development within TOG9 and TOG11 which would create a substantially lower risk of hindering the achievement of those objectives.
- Consider whether the benefit to the public of proceeding with the project clearly outweighs the risk of damage to the environment that will be created by proceeding with it; and
- If the benefit does outweigh the risk, then implement measures of equivalent environmental benefit to the damage which the project will or is likely to have in or on the NCMPA.

4.1.9 A plan level mitigation measure that could be applied to all screened in NCMPAs would be a requirement on all developers to ‘optimise’ infrastructure layout associated with the OAs to minimise potential adverse effects on protected features. While this measure is typically applied at project level, it could be specified as part of the plan.

⁹⁰ UK Government (2022) Policy paper Marine Environment: unexploded ordnance clearance joint interim position statement. [online] Available at: [Marine environment: unexploded ordnance clearance joint interim position statement - GOV.UK](#) (accessed 01/10/2024)

⁹¹ UK Government (2022) Policy paper Marine Environment: unexploded ordnance clearance joint interim position statement. [online] Available at: [Marine environment: unexploded ordnance clearance joint interim position statement - GOV.UK](#) (accessed 01/10/2024)

⁹² Marine and Coastal Access Act 2009 [online] Available at: [Marine and Coastal Access Act 2009](#) (accessed 20/11/2024)

4.1.10 In addition to the development of OAs, the Draft Plan will allow for up to a total of 1,000 MW generating capacity from T&D projects across Scottish waters. This capacity is equally divided across all five regions (West, North, Shetland, North East, East) of the Draft Plan, resulting in 200 MW generating capacity in each region. The plan level mitigation measures for these T&D projects are as follows:

- Maximum of 1,000 MW potential generating capacity of T&D projects across Scottish waters;
- Maximum potential generating capacity of any individual T&D project is 100 MW;
- Maximum of 200 MW potential generating capacity from T&D projects per region;
- T&D projects will not be coincident with OAs;
- T&D projects will be located outside the boundaries of MPAs; and
- A project level NCMPA Assessment will be required for any T&D projects and associated export cable routes that have the potential to affect any features of NCMPAs. The T&D projects and export cables will need to be designed and constructed in such a way as to ensure that there is no significant risk of hindering the conservation objectives of any protected features of NCMPAs. Any required project level mitigation measures for T&D projects will be location and project specific and highly dependent on the protected features and conservation objectives of any potentially affected NCMPAs. These may include consideration of the following:
 - Site specific sediment contamination surveys to confirm sediment quality of areas that will be disturbed by T&D project and/or along the export cable route;
 - Environmental management plans, marine pollution management contingency plans and/or pollution prevention plans to mitigate the effects of any pollution releases as part of the marine licensing process;
 - Hydrodynamic and sediment transport assessments to confirm and validate effects on the seabed sediments and physical processes;
 - JNCC piling protocol, including soft start and ramp-up procedures, to mitigate the risk of physiological damage on mobile features from piling noise;
 - Use of Acoustic Deterrent Devices (ADDs), if deemed appropriate;
 - Noise modelling to confirm potential effects on mobile features and level of uncertainty in predictions;

- Noise abatement measures at source, where feasible and effective to do so, to reduce the input of anthropogenic noise into the environment and potential displacement of mobile features;
- Prioritise use of low noise alternatives to high order detonations (e.g. low order deflagration) when developing protocols to clear UXOs in line with latest UK Government joint interim position statement⁹³;
- Seasonal restrictions on specific construction activities, depending on particular sensitivities of species at a project level (e.g. basking shark breeding periods);
- In accordance with JNCC advice⁹⁴, bury cables to the maximum sustainable depth to increase separation between the cable and EMF sensitive receptors; and
- Explore available engineering solutions to reduce potential EMF effects.

⁹³ UK Government (2022) Policy paper Marine Environment: unexploded ordnance clearance joint interim position statement. [online] Available at: [Marine environment: unexploded ordnance clearance joint interim position statement - GOV.UK](#) (accessed 01/10/2024)

⁹⁴ JNCC (2011). General advice on assessing potential impacts of and mitigation for human activities on MCZ features, using existing regulation and legislation. Advice from the Joint Nature Conservation Committee and Natural England to the Regional MCZ Projects. [online] Available at: [General advice on assessing potential impacts of and mitigation for human activities on MCZ features, using existing regulation and legislation \(jncc.gov.uk\)](#) (accessed 01/11/2024)

Appendix A. Abbreviations

AAIR	Appropriate Assessment Information Report
ABP	Associated British Ports
ADD	Acoustic Deterrent Device
CES	Crown Estate Scotland
EC	European Commission
EIA	Environmental Impact Assessment
EIARs	Environmental Impact Assessment Reports
EMF	Electromagnetic field
EMODnet	European Marine Observation and Data Network
EQS	Environmental Quality Standards
EU	European Union
FeAST	Feature Activity Sensitivity Tool
FUE	Follow Up Exercise
GeMS	Geodatabase of Marine Features in Scotland
GIS	Geographic Information System
GW	Gigawatt
HND	Holistic Network Design
HPMA	Highly Protected Marine Area
HRA	Habitats Regulations Appraisal
ICES	International Council for the Exploration of the Sea
INTOG	Innovation and Targeted Oil & Gas
IPR	Iterative Plan Review
JNCC	Joint Nature Conservation Committee
LAT	Lowest Astronomical Tide
MarESA	Marine Evidence based Sensitivity Assessment
MarLIN	The Marine Life Information Network
MCZ	Marine Conservation Zone
MOD	Ministry of Defence
MPA	Marine Protected Area
MW	Megawatt
NA	Not assessed
NCMPA	Nature Conservation Marine Protected Area
NESO	National Energy System Operator
NM	Nautical Mile

NMPi	National Marine Plan interactive
OA	Option Area
OSPAR	Oslo and Paris Conventions
OTNR	Offshore Transmission Network Review
OWD	Offshore Wind Directorate
OWE	Offshore Wind Energy
PAD	Pressures-Activities Database
PAH	Polycyclic Aromatic Hydrocarbons
RLG	Regional Location Guidance
SA	Sustainability Appraisal
SEA	Strategic Environmental Assessment
SEIA	Socio-Economic Impact Assessment
SMP	Sectoral Marine Plan
SNCB	Statutory Nature Conservation Body
TBT	Tributyltin
TLP	Tension Leg Platform
TOG	Targeted Oil & Gas
UK	United Kingdom
UXO	Unexploded Ordnance



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