

MONA OFFSHORE WIND PROJECT

Marine Conservation Zone Screening Report

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Image of an offshore wind farm

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Glossary

Term	Meaning
Applicant	Mona Offshore Wind Limited.
Benthic ecology	Benthic ecology encompasses the study of the organisms living in and on the sea floor, the interactions between them and impacts on the surrounding environment.
Biogenic reef	Reefs made up of hard matter created by living organisms.
Environmental Statement	The document presenting the results of the Environmental Impact Assessment (EIA) process for the Mona Offshore Wind Project.
Expert Working Group	Expert working groups set up with relevant stakeholders as part of the Evidence Plan process.
Geomorphological	Relating to the form or surface features of the earth.
Inter-array cables	Cables which connect the wind turbines to each other and to the offshore substation platforms. Inter-array cables will carry the electrical current produced by the wind turbines to the offshore substation platforms.
Interconnector cables	Cables that may be required to interconnect the Offshore Substation Platforms in order to provide redundancy in the case of cable failure elsewhere.
Landfall	The area in which the offshore export cables make contact with land and the transitional area where the offshore cabling connects to the onshore cabling.
Marine Conservation Zone (MCZ) Assessment	An assessment of the potential for the Mona Offshore Wind Project to affect the protected features of a Marine Conservation Zone (MCZ), and any ecological or geomorphological processes on which the protected feature is dependent on.
Marine licence	The Marine and Coastal Access Act 2009 requires a marine licence to be obtained for licensable marine activities. Section 149A of the Planning Act 2008 allows an applicant for a Development Consent Order (DCO) to apply for 'deemed marine licences' as part of the Development Consent Order (DCO) process. In addition, licensable activities within 12nm of the Welsh coast require a separate marine licence from Natural Resource Wales (NRW).
MCZ Screening	The process of determining whether section 126 of the Marine and Coastal Access Act 2009 should apply to a project's application for a marine licence.
Mean High Water Springs	The most inshore level location reached by the sea at high tide during mean high water spring tide. This is defined as the average throughout the year, of two successive high waters, during a 24-hour period in each month when the range of the tide is at its greatest.
Mona Array Area	The area within which the wind turbines, foundations, inter-array cables, interconnector cables, offshore export cables and offshore substation platforms forming part of the Mona Offshore Wind Project will be located.
Mona Offshore Cable Corridor	The corridor located between the Mona Array Area and the landfall up to Mean High Water Springs, in which the offshore export cables will be located.
Mona Offshore Cable Corridor and Access Areas	The corridor located between the Mona Array Area and the landfall up to Mean High Water Springs, in which the offshore export cables will be located and in which the intertidal access areas are located.
Mona Offshore Wind Project	The Mona Offshore Wind Project is comprised of both the generation assets and offshore and onshore transmission assets, and associated activities.

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Term	Meaning
Mona Offshore Wind Project Boundary	The area containing all aspects of the Mona Offshore Wind Project, both offshore and onshore.
Mona Offshore Wind Project Scoping Report	The Mona Scoping Report that was submitted to The Planning Inspectorate (on behalf of the Secretary of State) and Natural Resource Wales (NRW) for the Mona Offshore Wind Project.
Offshore Substation Platform	The offshore substation platforms located within the Mona Array Area will transform the electricity generated by the wind turbines to a higher voltage allowing the power to be efficiently transmitted to shore.
Subtidal	Area extending from below low tide to the edge of the continental shelf.
Suspended sediments	Particles that are suspended in the water column.
Tidal excursion	Horizontal distance that a particle moves during one tidal cycle of ebb and flow.
Underwater sound	Sound waves made underwater.
Wind turbines	The wind turbine generators, including the tower, nacelle and rotor.

Acronyms

Acronym	Description
DCO	Development Consent Order
EMF	Electromagnetic Fields
EWG	Expert Working Group
MCZ	Marine Conservation Zone
MEEB	Measures of Equivalent Environmental Benefit
MMO	Marine Management Organisation
MPA	Marine Protected Area
NRW	Natural Resources Wales
SoS	Secretary of State
SSC	Suspended Sediment Concentrations
ZoI	Zone of Influence

Units

Unit	Description
km	Kilometre
m	Metre
mg/l	Milligrams per litre
mm	Millimetre
MW	Megawatt

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Unit	Description
nm	Nautical mile

1 MCZ Screening Assessment

1.1 Introduction

1.1.1 Overview of the Mona Offshore Wind Project

1.1.1.1 Mona Offshore Wind Limited (the Applicant), a joint venture of bp Alternative Energy Investments Ltd (hereafter referred to as bp) and Energie Baden-Württemberg AG (hereafter referred to as EnBW), is developing the Mona Offshore Wind Project. The Mona Offshore Wind Project is a proposed wind farm located in the east Irish Sea.

1.1.1.2 The Mona Offshore Wind Project will consist of up to 96 wind turbines. The final capacity of the Mona Offshore Wind Project will be determined based on available technology and constrained by the design envelope presented in Volume 1, Chapter 3: Project description of the Environmental Statement. The offshore infrastructure will also include up to 360 km of offshore export cables, 50 km of interconnector cable and 325 km of inter-array cable.

1.1.1.3 The Applicant intends to commence construction of the Mona Offshore Wind Project in 2026 and for it to be fully operational by 2030 in order to help meet UK and Welsh Government renewable energy targets. The Mona Offshore Wind Project will have a lifetime of 35 years.

1.1.2 Purpose of the report

1.1.2.1 As the Mona Offshore Wind Project is an offshore generating station with a capacity of greater than 350 MW located in Welsh waters, it is a Nationally Significant Infrastructure Project (NSIP) as defined by Section 15(3) of the Planning Act 2008 (as amended) (the 2008 Act). As such, there is a requirement to submit an application for a Development Consent Order (DCO) to the Planning Inspectorate to be decided by the Secretary of State for the Department for Energy Security and Net Zero.

1.1.2.2 A marine licence is required before carrying out any licensable marine activity under the Marine and Coastal Access Act 2009. Marine licences can be deemed under the DCO for licensable activities in Welsh offshore waters. As agreed with Natural Resources Wales (NRW), the marine licence for all licensable activities related to the offshore wind farm generation infrastructure (i.e. wind turbines, Offshore Substation Platforms, inter-array cables and interconnector cables) located within the Mona Array Area will be deemed under the DCO. However, licensable activities within 12 nm of the Welsh coast require a separate marine licence. A separate application will therefore be made to NRW for a marine licence for the offshore export cables and related works located within the Mona Array Area and the Mona Offshore Cable Corridor and Access Areas.

1.1.2.3 This Marine Conservation Zone (MCZ) screening assessment has been prepared in support of both the DCO and marine licence applications. Section 126 of the Marine and Coastal Access Act 2009 places specific duties on the regulating authority (i.e. the Secretary of State in relation to the DCO application and NRW in respect of the marine licence application) when determining applications for consent that require the authority to consider the potential impact of a project on MCZs.

1.1.2.4 This MCZ screening assessment report is intended to inform the assessment required to be undertaken by the regulating authority when considering whether there is or may be a significant risk of the Mona Offshore Wind Project (i.e. the act) hindering the achievement of the conservation objectives stated for any MCZ.

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- 1.1.2.5 The MCZ screening has been undertaken based on the Mona Offshore Wind Project information detailed within Volume 1, Chapter 3: Project description of the Environmental Statement.
- 1.1.2.6 This MCZ Assessment should be read alongside the following technical reports and chapters of the Environmental Statement, all of which have been drawn upon and referred to throughout this document:
- Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement
 - Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement
 - Volume 6, Annex 1.1: Physical processes technical report of the Environmental Statement
 - Volume 2, Chapter 1: Physical processes of the Environmental Statement
 - Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement
 - Volume 2, Chapter 4: Marine mammals of the Environmental Statement
 - Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement.

1.1.3 Structure of the report

- 1.1.3.1 The structure of this MCZ screening assessment report is as follows:
- Section 1.1 – introduction to the Mona Offshore Wind Project and purpose of this report
 - Section 1.2 – relevant consultation undertaken to date with respect to the MCZ assessment
 - Section 1.3 – legislative framework for MCZ assessments and the requirements of the Marine Coastal and Access Act 2009
 - Section 1.4 - methodology, including description of the staged approach to the MCZ assessment following the relevant published guidelines
 - Section 1.5 – MCZ screening
 - Section 1.6 – conclusion
 - Section 1.7 – references.

1.2 Consultation

- 1.2.1.1 A summary of the key issues raised during consultation activities undertaken to date specific to the MCZ assessment is presented in Table 1.1 below.

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Table 1.1: Summary of key consultation topics raised during consultation activities undertaken for the Mona Offshore Wind Project relevant to the MCZ screening.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or were considered in this report
15 June 2022	Planning Inspectorate – Mona Offshore Wind Project Scoping Opinion.	Confirmed no comments on the proposed scope of the MCZ screening assessment as detailed in part 4, Annex C: MCZ Screening of the Mona EIA Scoping Report (bpEnBW, 2022).	The Applicant recognised that the Planning Inspectorate had no comments on part 4, Annex C: MCZ Screening of the Mona EIA Scoping Report (bpEnBW, 2022) and therefore no further action is required.
29 November 2022	Marine Management Organisation (MMO), Natural England, Joint Nature conservation Committee (JNCC), Natural Resources Wales (NRW), Centre for Environment, Fisheries and Aquaculture (Cefas), The Wildlife Trust (TWT) and Isle of Man Government - Benthic ecology, fish and shellfish and physical processes Expert Working Group (EWG) meeting 2.	This meeting highlighted that a preliminary screening was conducted for the Mona Offshore Wind Project Scoping Report. This screening was then updated with new physical processes and underwater sound modelling for mobile features of MCZs. The screening concluded no MCZs required a full MCZ assessment. The Isle of Man Government queried if clarification would be provided regarding the processes for screening MCZs.	This report provides the full methodology regarding how MCZs with various receptors have been screened out with the conclusions being provided in Table 1.2.
14 March 2023	MMO, Natural England, JNCC, NRW, Cefas, TWT and Isle of Man Government - Benthic ecology, fish and shellfish and physical processes EWG meeting 3.	A description of the findings of the MCZ screening were presented highlighting that no MCZs were to be taken forward to a Stage 1 assessment.	The Applicant recognised that as no comments were made regarding the MCZ screening no further action is required.

1.3 Legislative framework

1.3.1.1 In English and Welsh territorial (i.e. within 12 nm) and offshore waters, MCZs are designated under the Marine Coastal and Access Act 2009 and, together with other international and national designations, contribute to an ecologically coherent network of Marine Protected Areas (MPAs).

1.3.1.2 Section 126 of the Marine and Coastal Access Act 2009 places specific duties on regulatory bodies relating to MCZs and marine licence decision making. This is because section 126 applies where:

- (a) A public authority has the function of determining an application (whenever made) for authorisation of the doing of an act, and
- (b) The act is capable of affecting (other than insignificantly) -

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- (i) *The protected features of an MCZ and/or*
- (ii) *Any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependent.*

1.3.1.3 The authority must not grant authorisation for activities licensed under the Marine and Coastal Access Act 2009 unless the Applicant seeking the authorisation satisfies the authority that there is no significant risk of the act hindering the achievement of the conservation objectives stated for the MCZ.

1.3.1.4 The statutory nature conservation bodies (SNCBs) have responsibility under the Marine and Coastal Access Act 2009 to give advice on how to identify the activities that are capable of affecting the designated features and the processes which they are dependent upon.

1.3.1.5 If the Applicant seeking the authorisation is not able to satisfy the authority that there is no significant risk of the act hindering the achievement of the conservation objectives stated for the MCZ, that Applicant must satisfy the authority that:

- There is no other means of proceeding with the act which would create a substantially lower risk of hindering the achievement of those objectives and
- The benefit to the public of proceeding with the act clearly outweighs the risk of damage to the environment that will be created by proceeding with it and
- The person seeking the authorisation will undertake, or make arrangements for the undertaking of, measures of equivalent environmental benefit to the damage which the act will or is likely to have in or on the MCZ.

1.4 MCZ assessment methodology

1.4.1 Overview

1.4.1.1 This MCZ screening assessment has been informed by guidance published by the Marine Management Organisation (MMO) which describes how MCZ Assessments could be undertaken in the context of marine licensing decisions (MMO, 2013). These MMO guidelines recommend a staged approach to the assessment, with three sequential stages:

1. Screening
2. Stage 1 assessment
3. Stage 2 assessment.

1.4.1.2 These stages are shown in Figure 1.1 and are described in detail in sections 1.4.2 to 1.4.4.

1.4.1.3 In the absence of published Planning Inspectorate guidance or advice on MCZ Assessments for DCO applications, the MMO (2013) guidance is considered appropriate to inform the assessment for the Mona Offshore Wind Project.

1.4.2 Screening

1.4.2.1 According to the MMO (2013) guidance, all marine licence applications must be screened to determine, in the first instance, whether section 126 of the Marine and Coastal Access Act 2009 applies. The MMO (2013) guidance states that section 126 applies if it is determined through the course of screening that:

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- The licensable activity is taking place within or near an area being put forward or already designated as an MCZ and
- The activity is capable of affecting (other than insignificantly) either
 - (i) the protected features of an MCZ
 - (ii) any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependent.

1.4.2.2 The MMO (2013) guidance recommends the use of a risk-based approach to determine the “nearness” of an activity to MCZs, including applying an appropriate buffer zone to the MCZ protected features under consideration as well as a consideration of risks for activities at greater distances from protected features of the MCZ(s).

1.4.2.3 In determining “insignificance”, the MMO (2013) guidance states that consideration should be given to the likelihood of an activity causing an effect, the magnitude of the effect should it occur, and the potential risk any such effect may cause to either the protected features of an MCZ or any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependent.

1.4.2.4 A preliminary MCZ screening exercise was undertaken for the Mona Offshore Wind Project in the Mona EIA Scoping Report (bpEnBW, 2022) which concluded that the Mona Offshore Wind Project is unlikely to have the potential to directly or indirectly affect the interest features of any MCZ. The preliminary MCZ screening considered the following criteria:

- MCZs with physical overlap with the Mona Array Area and the Mona Offshore Cable Corridor
- MCZs within the Zone of Influence (Zol) for individual topics:
 - Benthic Zol comprising a buffer of one mean tidal excursion from the Mona Array Area and Mona Offshore Cable Corridor to capture indirect effects such as those from increased suspended sediment concentrations (SSC) and associated deposition
 - Fish Zol comprising a buffer of one mean tidal excursion from the Mona Array Area and Mona Offshore Cable Corridor to capture the area most likely to be affected by underwater sound.

1.4.2.5 Following the preliminary screening undertaken in the Mona EIA Scoping Report (bpEnBW, 2022), more detailed information presented within the offshore chapters of the Environmental Statement has been reviewed. This has been undertaken to further validate the screening buffers for benthic features and fish features and also to fully define the screening buffer for other highly mobile species (i.e. marine mammals and birds). This more detailed review has also been undertaken to confirm whether the Mona Offshore Wind Project is taking place within or near an area being put forward or already designated as an MCZ and whether the licensable activities are capable of significantly affecting (other than insignificantly) either i) the protected features of any MCZ within the screening buffers, or ii) any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependant. This included a review of outputs from Volume 6, Appendix 1.1: Physical processes technical report of the Environmental Statement and Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement to identify potential far field effects (e.g. increases in SSC), and changes to the tidal and wave regime due to the operation of the Mona Offshore Wind Project. This also included a review of outputs from Volume 5, Annex 3.1: Underwater sound technical report of the

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Environmental Statement, Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement and Volume 2, Chapter 4: Marine mammals of the Environmental Statement to identify potential far field effects from underwater sound due to the construction of the Mona Offshore Wind Project.

- 1.4.2.6 Where robust evidence is available from the Environmental Statement to further justify screening out MCZs, this evidence has been referenced and justification presented within section 1.5 below.

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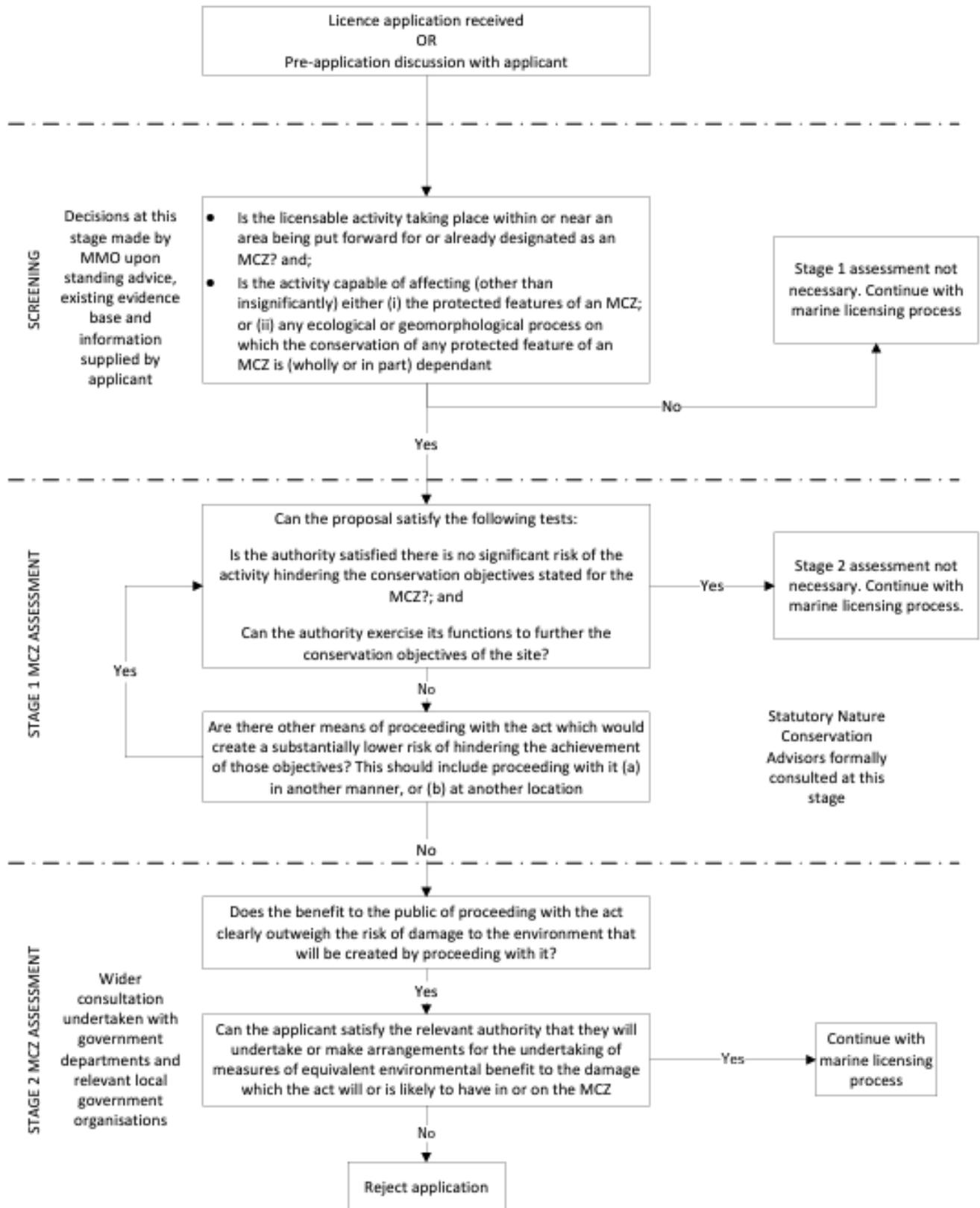


Figure 1.1: Summary of the MCZ assessment process to be used by the MMO in marine licence decision making (MMO, 2013).

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1.4.3 Stage 1 assessment methodology

- 1.4.3.1 For MCZs identified through the screening stage, the Stage 1 assessment considers whether the conditions in section 126(6) of the Marine and Coastal Access Act 2009 can be met. The decision-maker must be satisfied there is no significant risk of the activity hindering the achievement of the conservation objectives stated for the MCZ. In doing so, the MMO (2013) guidelines suggest the decision-maker uses the information supplied by the applicant with the licence application, advice from the SNCBs and any other relevant information. If the condition in section 126(6) of the Marine and Coastal Access Act 2009 cannot be met, the Stage 1 assessment also considers whether the condition in section 127(7)(a) can be met. In doing so the decision maker must determine whether:
- There is no other means of proceeding with the act which would create a substantially lower risk of hindering the achievement of the conservation objectives stated for the MCZ. This should include proceeding with it (a) in another manner, or (b) at another location.
- 1.4.3.2 In undertaking a Stage 1 assessment, the decision-maker must formally consult with SNCBs for a period of 28 days (under sections 126(2) and (3) of the Marine and Coastal Access Act 2009) unless the SNCB notifies the decision-maker that it need not wait, or the decision-maker determines that there is an urgent need to grant authorisation (in accordance with section 126(4) of the Marine and Coastal Access Act 2009).
- 1.4.3.3 In the Stage 1 assessment, the conservation objectives for the MCZ features must be considered. While conservation objectives for individual MCZs or certain features are often site-specific, the two overarching conservation objectives defined for MCZs are:
- To maintain a feature in favourable condition if it is already in favourable condition
 - To bring a feature into favourable condition if it is not already in favourable condition.
- 1.4.3.4 Within the Stage 1 assessment, the MMO (2013) guidance advises that "hinder" would be any act that could, either alone or in combination:
- In the case of a conservation objective of "maintain", increase the likelihood that the current status of a feature would go downwards (e.g. from favourable to degraded) either immediately or in the future (i.e. they would be placed on a downward trend) or
 - In the case of a conservation objective of "recover", decrease the likelihood that the current status of a feature could move upwards (e.g. from degraded to favourable) either immediately or in the future (i.e. they would be placed on a flat or downward trend).
- 1.4.3.5 The MMO (2013) guidance states that when considering whether an activity can hinder the conservation objectives of a site, consideration should be given to direct impacts of an activity upon a feature as well as any applicable indirect impacts. Such an indirect impact could include the changing effectiveness of a management measure put in place to further the conservation objectives.
- 1.4.3.6 The Applicant should also be able to demonstrate, for the purposes of the condition in section 126(7)(a) of the Marine and Coastal Access Act 2009, that any "other means" of proceeding reduces the risk such that the act no longer has a significant risk of hindering the conservation objectives of the site.

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1.4.3.7 In the event that mitigation to reduce the impacts to an acceptable level cannot be secured, and there are no other means that substantially lower the risk of hindering the achievement of the conservation objectives, then a Stage 2 assessment would be required (see section 1.4.4).

1.4.4 Stage 2 assessment methodology

1.4.4.1 The Stage 2 assessment, if required, considers whether the conditions in sections 126(7)(b) and (c) of the Marine and Coastal Access Act 2009 can be met. The MMO (2013) guidance advises that the decision maker should use information supplied by the applicant, advice from the SNCBs and any other relevant information to determine whether:

- The benefit to the public of proceeding with the act clearly outweigh the risk of damage to the environment that will be created by proceeding with it; and, if so, then whether
- The applicant can satisfy the MMO that they will undertake or make arrangements for the undertaking of Measures of Equivalent Environmental Benefit (MEEB) to the damage which the act will or is likely to have in or on the MCZ.

1.4.4.2 The above determinations should be addressed in sequence, that is, if the public benefit test is not “passed” then a consideration of MEEB would not be made as the application would be rejected (MMO, 2013).

1.4.4.3 In determining “public benefit”, the decision maker should consider benefits at a national, regional or local level.

1.4.4.4 The MMO (2013) guidance suggests that the types of compensatory measures, if deemed necessary, that might be considered under the Habitats Directive may also be appropriate when determining MEEB, although consideration will not be confined to those measures alone.

1.5 MCZ screening for the Mona Offshore Wind Project

1.5.1 Overview

1.5.1.1 This section documents the MCZ screening for the Mona Offshore Wind Project. The screening considers all MCZs located within the relevant study areas as shown in Figure 1.2:

- Benthic receptors - the regional benthic subtidal and intertidal ecology study area as defined in Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement
- Fish receptors - the Mona fish and shellfish ecology study area as defined in Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement
- Marine mammals - the regional marine mammal study area (i.e. the Irish Sea and wider Celtic Sea) as displayed in Figure 4.4 of Volume 2, Chapter 4: Marine mammals of the Environmental Statement
- Birds - a 100 km buffer of the Mona Array Area as defined in Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement.

1.5.1.2 As outlined in paragraph 1.4.2.1, the MMO (2013) guidelines suggest that section 126 would apply if it is determined through the course of screening that “the licensable

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activity is taking place within or near an area being put forward or already designated as an MCZ". The following sections use the information presented in the Environmental Statement to define the Zol for the Mona Offshore Wind Project. These Zol have been used to determine the 'nearness' of the activities associated with the Mona Offshore Wind Project and therefore to identify whether the Mona Offshore Wind Project is likely to have the potential to directly or indirectly affect the interest features of any MCZ.

- 1.5.1.3 Features protected by MCZs include benthic habitats and species, and highly mobile species (i.e. fish, marine mammals and birds). The impact pathways and associated Zol considered within this screening assessment are those that specifically relate to these receptors and draw on technical outputs of the reporting undertaken for the Environmental Statements.

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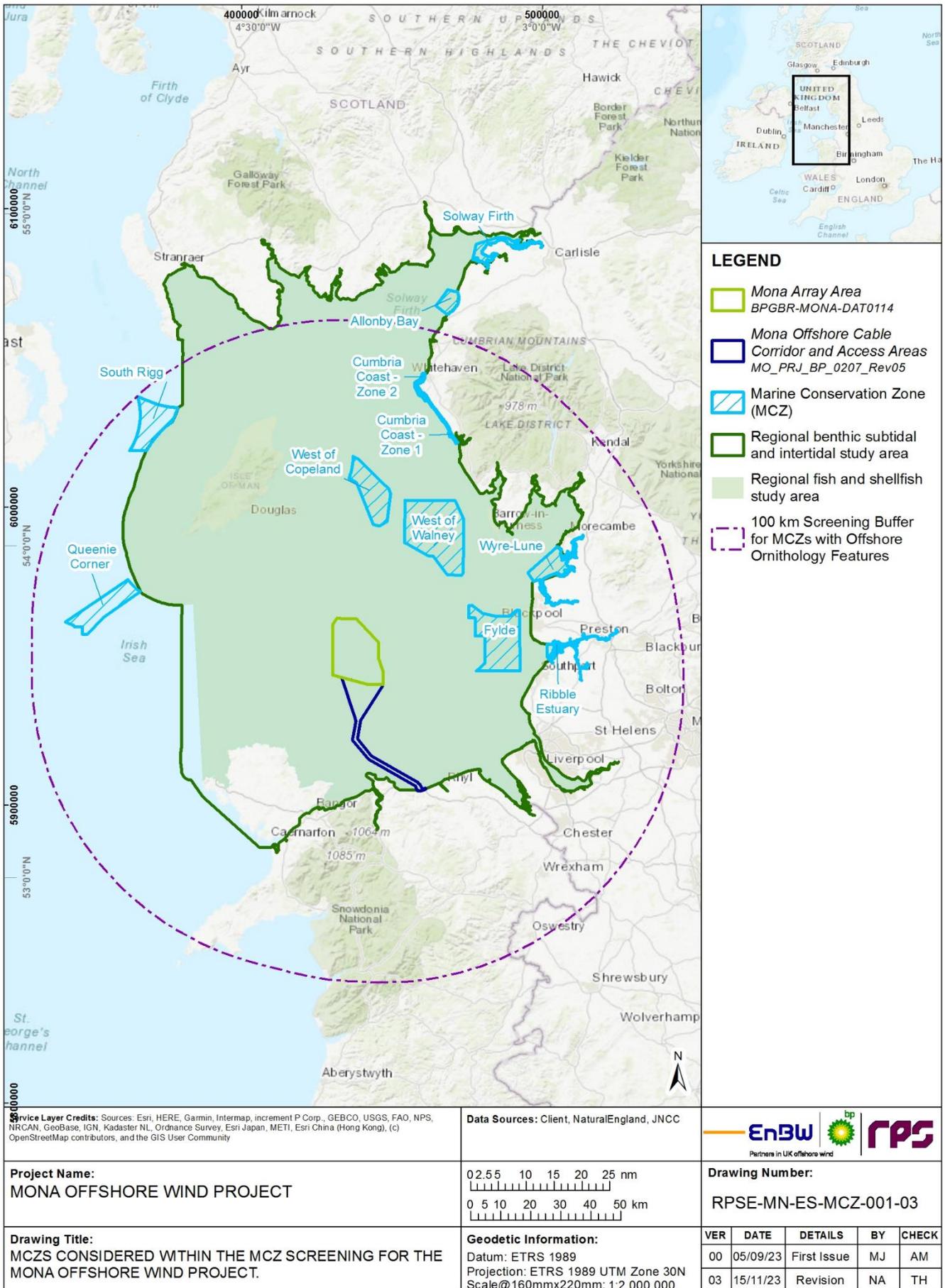


Figure 1.2: MCZs considered within the MCZ screening for the Mona Offshore Wind Project.

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1.5.2 Screening criteria for benthic habitat features of MCZs

1.5.2.1 A total of seven MCZs located within the regional benthic subtidal and intertidal ecology study area are designated for benthic habitat features and have, therefore, been considered within this screening (see Table 1.2):

- Fylde MCZ
- West of Walney MCZ
- West of Copeland MCZ
- Cumbria Coast MCZ
- Queenie Corner MCZ
- South Rigg MCZ
- Allonby Bay MCZ.

1.5.2.2 To determine the 'nearness' of the activities associated with the Mona Offshore Wind Project, and the potential for associated activities to affect (other than insignificantly) either i) the protected habitat features of these sites or ii) any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependant, the following screening criteria has been used for MCZs with benthic features:

- Direct impacts to benthic habitats and species (e.g. those arising potentially from temporary habitat disturbance, long term habitat loss, introduction of artificial structures, electromagnetic fields (EMF) and heats effects from cabling) will be confined to within the Mona Array Area and the Mona Offshore Cable Corridor. There is no physical overlap between the Mona Offshore Wind Project and any MCZ designated for benthic habitats or species (see Figure 1.2). As such, no MCZs are screened in for this criteria
- Indirect impacts to benthic habitats and species of MCZs may occur potentially as a result of increases in SSC (including remobilisation of contaminated sediments), sediment deposition, and also from the physical presence of the Mona Offshore Wind Project infrastructure resulting in potential changes in physical processes. Physical processes modelling has been undertaken to inform the Environmental Statement and is presented in Volume 6, Appendix 1.1: Physical processes technical report of the Environmental Statement. This has modelled the predicted increases in SSC and associated sediment deposition for construction activities including sandwave clearance, drilling for foundation installation and cable installation, which has refined the Zol as follows:
 - During drilling for foundation installation, plumes of increased SSC with peak concentrations of up to 50 mg/l, but average concentrations of typically one fifth of this, are predicted to extend up to approximately 14 km (east to west, ~7 km in each direction) in the northeast of the Mona Array Area, up to approximately 22 km (east to west, ~11 km in each direction) in the southeast, and 21 km (east to west, ~10.5 km in each direction) in the central north of the Mona Array Area
 - During export cable and inter array sandwave clearance, average increases in SSC of typically less than 300 mg/l along the Mona Offshore Cable Corridor and less than 500 mg/l within the Mona Array Area are predicted, extending a tidal excursion of approximately 20 km (i.e. up to 10 km in any

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direction from the point of release). Sedimentation associated with the deposition of sandwave clearance material within the Mona Array Area is predicted to be focussed to within 100 m of the site of release, and concentrations of typically less than 30 mm at this distance, with dispersion predicted on successive tides. Sedimentation associated with drilling is predicted to settle within the immediate vicinity of the works for the coarser material, with lower levels of sedimentation redistributed over a wider area

- During inter array and export cable installation, peak plume concentrations are highest at the release site (up to 500 mg/l for inter-array and up to 1,000 mg/l for export cables) and sedimentation levels of up to 30 mm (but typically less than this for the export cable) are predicted at the trench site. The predicted SSC levels and sediment depths are predicted to reduce with distance from the trench with the greatest area of increased SSC occurring within a plume envelope width of approximately 20 km (i.e. extending 10 km in each direction from the site), with typical levels of less than 50 mg/l
- Modelling presented in Volume 6, Annex 1.1: Physical processes technical report of the Environmental Statement indicated changes in tidal flows, as a result of the physical presence of foundations, will be limited to, and would be imperceptible beyond, the immediate Mona Array Area. Impacts to sediment transport and sediment transport pathways are predicted to be well within the natural variation and would not be sufficient to disrupt beach and offshore bank morphological processes or destabilise coastal features
- On the whole, the greatest increases in SSC were predicted to occur within a plume envelope of approximately 22 km (i.e. 11 km in either direction), which corresponds with the tidal excursion. On the basis of the modelling outlined above, a precautionary buffer of 12 km has been adopted to screen sites within the Zol of increased SSC, sediment deposition and changes in physical processes. Beyond this distance, any increases in SSC and sediment deposition would be so minimal that they would be imperceptible from natural background variation. These activities would therefore not be capable affecting (other than insignificantly) either (i) the protected features of an MCZ or ii) any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependant. There is therefore no significant risk of the act hindering the achievement of the conservation objectives stated for any MCZ. Using this buffer, no MCZs are screened in for this criteria.

1.5.2.3 In summary, the proposed activities are not capable affecting (other than insignificantly) either (i) the protected features of an MCZ or ii) any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependant. There is therefore no significant risk of the activities hindering the achievement of the conservation objectives stated for any MCZ. As such, no MCZs designated for benthic habitat features are taken forward for consideration in a Stage 1 assessment.

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1.5.3 Screening criteria for fish features of MCZs

1.5.3.1 A total of three MCZs within the regional fish and shellfish ecology study area are designated for mobile fish species and have been considered within this screening. All three MCZs are located on the northwest coast of England:

- Ribble Estuary MCZ
- Wyre Lune MCZ
- Solway Firth MCZ.

1.5.3.2 All three sites are designated for smelt *Osmerus eperlanus* (see Table 1.2). To determine the 'nearness' of the activities associated with the Mona Offshore Wind Project, and the potential for associated activities to affect (other than insignificantly) the protected smelt features of these sites, the following screening criteria have been used:

- Direct impacts to fish features of MCZs (e.g. arising potentially from temporary habitat disturbance, long term habitat loss, colonisation of hard structures and EMF) will be confined to the area within the boundaries of the Mona Array Area and the Mona Offshore Cable Corridor. There is no spatial overlap between the Mona Offshore Wind Project Boundary and any MCZ designated for fish or any other features (see Figure 1.2). As such, no MCZs are screened in for this criteria
- Direct impacts to fish features of MCZs (i.e. smelt) may occur potentially as a result of increased underwater sound. Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement, provides a comprehensive assessment of the potential for behavioural effects in fish resulting from underwater sound during construction. The assessment in Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement uses the modelling outputs in Volume 5, Annex 3.1: Underwater sound technical report of the Environmental Statement and concludes that, even for the most precautionary maximum hammer energy, noise levels resulting in significant behavioural disturbance to fish features of MCZs are not predicted to extend to the northwest coast of England (Figure 1.3). Smelt are known to congregate in large shoals in lower estuaries and migrate into freshwater where they spawn in spring (Defra, 2019a). Given the coastal distribution of smelt, and the fact that they are unlikely to travel offshore from the estuarine sites for which they are designated on the northwest coast of England (Figure 1.3), it is considered highly unlikely that their habitats would overlap with those areas which may be influenced by construction related underwater sound at levels with potential to cause any adverse effects. As such, it is unlikely that they would be adversely affected by underwater sound potentially arising from the construction of the Mona Offshore Wind Project. As such, no fish features of MCZs are screened in for this criteria
- Indirect impacts to fish features of MCZs may potentially occur as a result of increases in SSC and associated deposition. The Zol applied for SSC and sediment deposition, together with the justification, is as outlined used in section 1.5.2 (i.e. 12 km) and no MCZs are screened in on this basis.

1.5.3.3 In summary, the proposed activities are not capable affecting (other than insignificantly) either (i) the protected features of an MCZ or ii) any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependant. There is therefore no significant risk of the

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activities hindering the achievement of the conservation objectives stated for any MCZ designated for fish features. As such, no MCZs designated for fish features are taken forward for consideration in a Stage 1 assessment.

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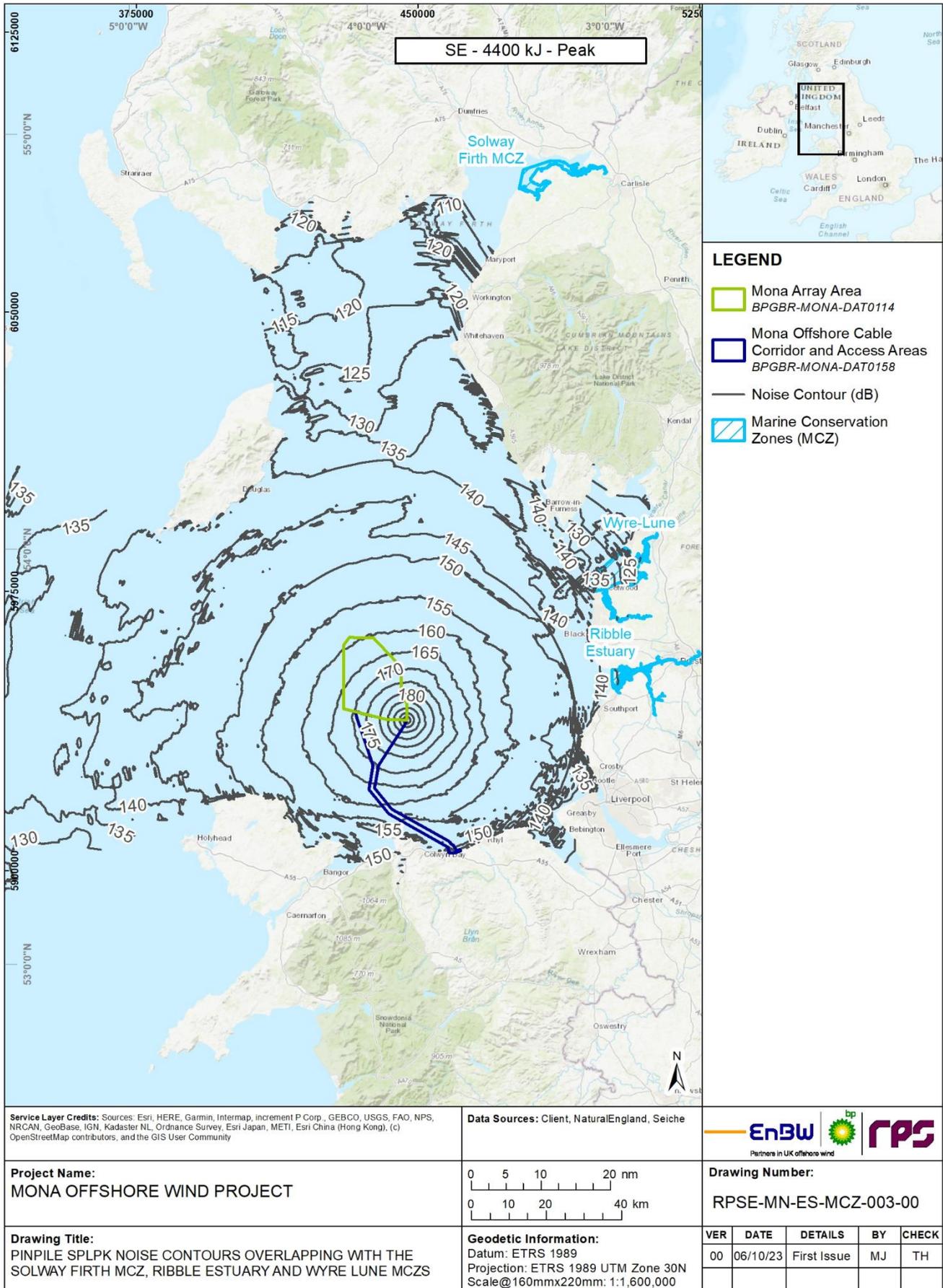


Figure 1.3: Pin-pile SPLPK noise contours in relation to the Solway Firth MCZ, Ribble Estuary and Wyre Lune MCZs.

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1.5.4 Screening criteria for marine mammal features of MCZs

1.5.4.1 No MCZs with marine mammals as designated features have been identified within the regional marine mammal study area. As such, no MCZs for marine mammals require further consideration in this MCZ screening as no sites are likely to be affected by the Mona Offshore Wind Project.

1.5.5 Screening criteria for ornithological features of MCZs

1.5.5.1 As outlined in Table 1.2, a single MCZ designated for ornithological features is located within 100 km of the Mona Array Area and Mona Offshore Cable Corridor and Access Areas; Cumbria Coast MCZ (Figure 1.2) is designated for razorbill *Alca torda* (Defra, 2019b) as well as benthic habitat features considered in section 1.5.2.

1.5.5.2 The coast of Cumbria, extending from south of Whitehaven, around the cliffs at St Bees Head, to the mouth of Ravenglass Estuary is particularly important for seabirds with an estimated 10,000 breeding seabirds thought to be present (Defra, 2019b). Although it should be noted that not all of these breeding seabirds will be razorbill. To determine the 'nearness' of the activities associated with the Mona Offshore Wind Project to MCZs for ornithological features, the following screening criteria have been used:

- Direct impacts to ornithological features of MCZs may potentially arise from collisions with rotating wind turbine blades. This impact will be confined to within the Mona Array Area. For seabirds, collision risk varies between species in relation to a range of factors associated with flight behaviour but with flight heights being of fundamental importance in predicting the vulnerability to this effect (Johnston *et al.*, 2014a,b). Species, including auk species (i.e. razorbills), which fly at low heights and below the rotor swept area are not considered to be vulnerable to this effect pathway. As such, no MCZs are screened in for this criteria. This is supported by site specific collision risk modelling for the Mona Array Area which showed that the risk to razorbill is negligible (see Volume 6, Annex 5.3: Offshore ornithology collision risk assessment of the Environmental Statement)
- Direct impacts to ornithological features of MCZs may also comprise disturbance and displacement from preferred foraging areas potentially arising from the physical presence of infrastructure and vessels. Such effects may be most likely in relation to seabirds using the marine habitats within the Mona Array Area (noting that the Mona Array Area is within the foraging range for razorbill from the Cumbria Coast MCZ), although species are known to vary in their sensitivity to displacement. Results from the site specific displacement and apportioning assessments (see Volume 6, Annex 5.5: Offshore ornithology apportioning assessment of the Environmental Statement and Volume 6, Annex 5.2: Offshore ornithology displacement assessment of the Environmental Statement) have shown that the risk of displacement to razorbill is very low. The razorbill colony within the Cumbria Coast MCZ is associated with the St Bees Head Nature Reserve, which is located 80.7 km from the Mona Array Area. For razorbill at the St Bees Head colony, the mean expected increase in mortality due to displacement was 0.0 adult birds per annum, for a colony size of 228 birds (see HRA Stage 1 Screening Report (Document Reference E1.4) and Volume 6, Annex 5.5: Offshore ornithology apportioning assessment of the Environmental Statement). On this basis, there would be a 0% increase in baseline mortality. As such, the Cumbria Coast MCZ is not screened in for this criteria

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- For all other potential impact pathways (i.e. temporary habitat loss and increased SSC, barrier to movement and changes in prey availability) the likelihood of the Mona Offshore Wind Project resulting in significant effects on razorbill is low. This is due to the temporary and localised extent of the impacts associated with temporary habitat loss and SSC and the reversible nature of the effects. Similarly, effects on prey species will be temporary, and in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities, significant effects are unlikely. As such, the Cumbria Coast MCZ is not screened in on the basis of these impact pathways.

1.5.5.3 In summary, the proposed activities are not capable affecting (other than insignificantly) either (i) the protected features of an MCZ or ii) any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependant. There is therefore no significant risk of the activities hindering the achievement of the conservation objectives stated for any MCZ designated for ornithological features. As such, no MCZs designated for ornithological features are taken forward for consideration in a Stage 1 assessment.

1.5.6 Summary of screening conclusions

1.5.6.1 A total of 10 MCZs were considered in the MCZ screening for the Mona Offshore Wind Project, which comprised those located within the regional benthic subtidal and intertidal ecology study area and the Mona fish and shellfish ecology study area. The screening has concluded that the Mona Offshore Wind Project is not capable of affecting (other than insignificantly), the protected features of an MCZ, or any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependant, as summarised in Table 1.2 below. There is no significant risk of the Mona Offshore Wind Project hindering the achievement of the conservation objectives stated for any MCZ.

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Table 1.2: Screening conclusions for MCZs.

MCZ	Protected Features	Distance from the Mona Array Area (km)	Distance from the Mona Offshore Cable Corridor (km)	Potential Impact Pathway	Screening Conclusion and Justification
Fylde MCZ	<ul style="list-style-type: none"> Subtidal sand Subtidal mud. 	31	31.33	No potential pathways identified	Screened out – the Fylde MCZ does not spatially overlap with the Mona Offshore Wind Project and falls outside the 12 km Zol identified for impact pathways (i.e. increased SSC and sediment deposition) that have the potential to affect benthic habitat features. The Fylde MCZ has therefore been screened out and does not require a Stage 1 assessment.
West of Walney MCZ	<ul style="list-style-type: none"> Subtidal sand Subtidal mud Sea pen and burrowing megafauna communities. 	30.51	42.64	No potential pathways identified	Screened out – the West of Walney MCZ does not spatially overlap with the Mona Offshore Wind Project and falls outside the 12 km Zol identified for impact pathways (i.e. increased SSC and sediment deposition) that have the potential to affect benthic habitat features. The West of Walney MCZ has therefore been screened out and does not require a Stage 1 assessment.
West of Copeland MCZ	<ul style="list-style-type: none"> Subtidal coarse sediment Subtidal sand Subtidal mixed sediment. 	32.21	52.4	No potential pathways identified	Screened out – the West of Copeland MCZ does not spatially overlap with the Mona Offshore Wind Project and falls outside the 12 km Zol identified for impact pathways (i.e. increased SSC and sediment deposition) that have the potential to affect benthic habitat features. The West of Copeland MCZ has therefore been screened out and does not require a Stage 1 assessment.
Ribble Estuary MCZ	<ul style="list-style-type: none"> Smelt (<i>Osmerus eperlanus</i>). 	54.9	55.6	No potential pathways identified	Screened out – the Ribble Estuary MCZ does not spatially overlap with the Mona Offshore Wind Project. The site also falls outside the Zol for significant behavioural disturbance to smelt, as determined by the assessment presented in Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement and the modelling outputs in Volume 5, Annex 3.1: Underwater sound technical report of the Environmental Statement. The Ribble Estuary MCZ also falls outside the 12 km Zol identified for impact pathways associated with increased SSC that have the potential to affect fish features. The Ribble Estuary MCZ

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MCZ	Protected Features	Distance from the Mona Array Area (km)	Distance from the Mona Offshore Cable Corridor (km)	Potential Impact Pathway	Screening Conclusion and Justification
					has therefore been screened out and does not require a Stage 1 assessment.
Wyre Lune MCZ	<ul style="list-style-type: none"> Smelt (<i>Osmerus eperlanus</i>). 	55	60.6	No potential pathways identified	Screened out – the Wyre Lune MCZ does not spatially overlap with the Mona Offshore Wind Project. The site also falls outside the Zol for significant behavioural disturbance to smelt, as determined by the assessment presented in Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement and the modelling outputs in Volume 5, Annex 3.1: Underwater sound technical report of the Environmental Statement. The Wyre Lune MCZ also falls outside the 12 km Zol identified for impact pathways associated with increased SSC that have the potential to affect fish features. The Wyre Lune MCZ has therefore been screened out and does not require a Stage 1 assessment.
Cumbria Coast MCZ	<ul style="list-style-type: none"> High energy intertidal rock Honeycomb worm (<i>Sabellaria alveolata</i>) reefs Intertidal biogenic reefs Intertidal sand and muddy sand Intertidal underboulder communities Moderate energy infralittoral rock Peat and clay exposures Razorbill (<i>Alca torda</i>). 	67.95	86.19	No potential pathways identified	Screened out – the Cumbria Coast MCZ does not spatially overlap with the Mona Offshore Wind Project and falls outside the 12 km Zol identified for impact pathways (i.e. increased SSC and sediment deposition) that have the potential to affect benthic habitat features. The risk of disturbance and displacement of the ornithological feature of the Cumbria Coast MCZ is very low and any increase in mortality would be indistinguishable from the baseline mortality for the MCZ. Collision risk modelling for the Mona Array Area has shown that the risk to razorbill is negligible. The Cumbria Coast MCZ has therefore been screened out and does not require a Stage 1 assessment.
Queenie Corner MCZ	<ul style="list-style-type: none"> Sea pen and burrowing megfauna communities Subtidal mud. 	65.0	73.0	No potential pathways identified	Screened out – the Queenie Corner MCZ does not spatially overlap with the Mona Offshore Wind Project and falls outside the 12 km Zol identified for impact pathways (i.e. increased SSC and sediment deposition) that have the potential to affect benthic habitat features. The Queenie

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MCZ	Protected Features	Distance from the Mona Array Area (km)	Distance from the Mona Offshore Cable Corridor (km)	Potential Impact Pathway	Screening Conclusion and Justification
					Corner MCZ has therefore been screened out and does not require a Stage 1 assessment.
South Rigg MCZ	<ul style="list-style-type: none"> Moderate energy circalittoral rock Subtial coarse sediment Subtidal sand Subtidal mud Subtidal mixed sediment Sea pen and burrowing megfauna communities. 	84.7	100.0	No potential pathways identified	Screened out – the South Rigg MCZ does not spatially overlap with the Mona Offshore Wind Project and falls outside the 12 km Zol identified for impact pathways (i.e. increased SSC and sediment deposition) that have the potential to affect benthic habitat features. The South Rigg MCZ has therefore been screened out and does not require a Stage 1 assessment.
Allonby Bay MCZ	<ul style="list-style-type: none"> Low energy intertidal rock Moderate energy intertidal rock High energy intertidal rock Intertidal biogenic reefs Intertidal coarse sediment Intertidal sand and muddy sand Moderate energy infralittoral rock Subtidal biogenic reefs Subtidal coarse sediment Subtidal mixed sediments Subtidal sand Peat and clay exposures Blue mussel (<i>Mytilus edulis</i>) beds Honeycomb worm (<i>Sabellaria alveolata</i>) reefs. 	106.67	126.26	No potential pathways identified	Screened out – the Allonby Bay MCZ does not spatially overlap with the Mona Offshore Wind Project and falls outside the 12 km Zol identified for impact pathways (i.e. increased SSC and sediment deposition) that have the potential to affect benthic habitat features. The Allonby Bay MCZ has therefore been screened out and does not require a Stage 1 assessment.

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MCZ	Protected Features	Distance from the Mona Array Area (km)	Distance from the Mona Offshore Cable Corridor (km)	Potential Impact Pathway	Screening Conclusion and Justification
Solway Firth MCZ	<ul style="list-style-type: none"> Smelt (<i>Osmerus eperlanus</i>). 	125.3	144.1	No potential pathways identified	<p>Screened out – the Solway Firth MCZ does not spatially overlap with the Mona Offshore Wind Project. The site also falls outside the Zol for significant behavioural disturbance to smelt, as determined by the assessment presented in Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement and the modelling outputs in Volume 5, Annex 3.1: Underwater sound technical report of the Environmental Statement. The Solway Firth MCZ also falls outside the 12 km Zol identified for impact pathways associated with increased SSC that have the potential to affect fish features. The Solway Firth MCZ has therefore been screened out and does not require a Stage 1 assessment.</p>

1.6 MCZ screening conclusions

1.6.1.1 No MCZs spatially overlap with the Mona Offshore Wind Project (see Figure 1.2) and no MCZs are within the Zols identified for impact pathways that have the potential to affect benthic habitat, fish, marine mammal or ornithological features of MCZs in the region (see Table 1.2). It is considered that the construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project is unlikely to have the potential to directly or indirectly affect the interest features of any MCZ. On this basis, the regulating authority (i.e. the Secretary of State (SoS) in relation to the DCO application and NRW in respect of the marine licence application) can be satisfied that section 126 of the Marine and Coastal Access Act 2009 does not apply as:

- The licensable activity is not taking place within or near an area being put forward or already designated as an MCZ and
- The activity is not capable of affecting (other than insignificantly) either (i) the protected features of an MCZ; or (ii) any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependant.

1.6.1.2 It is, therefore, concluded that there is no significant risk of the Mona Offshore Wind Project hindering the achievement of the conservation objectives stated for any MCZ and a Stage 1 MCZ assessment is not required for any MCZ for the Mona Offshore Wind Project.

1.7 References

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