

MONA OFFSHORE WIND PROJECT

Marine Conservation Zone (MCZ) Assessment Report

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Final

Image of an offshore wind farm

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Prepared by:**RPS****Prepared for:****Mona Offshore Wind Ltd.**

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Glossary

Term	Meaning
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.
Intertidal	Area of a shoreline that is covered at high tide and uncovered at low tide.
Geomorphological	Relating to the form or surface features of the earth.
Mean High Water Spring	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.
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.

Acronyms

Acronym	Description
DCO	Development Consent Order
EMF	Electromagnetic Fields
HVAC	High Voltage Alternating Current
MCZ	Marine Conservation Zone
MEEB	Measures of Equivalent Environmental Benefit
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
MPA	Marine Protected Area
NRW	Natural Resources Wales
PEIR	Preliminary Environmental Information Report
SoS	Secretary of State
SSC	Suspended Sediment Concentrations
ZOI	Zone of Influence

Units

Unit	Description
dB	Decibel
km	Kilometre
GW	Gigawatt
m	Metre
mg/l	Milligrams per litre
mm	Millimetre
MW	Megawatt
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, with a landfall on the North Wales coastline and a connection to the existing Bodelwyddan National Grid substation.

1.1.1.2 The Mona Offshore Wind Project will consist of up to 107 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 Preliminary Environmental Information Report (PEIR). The offshore infrastructure will also include up to 360km of offshore export cables, 50km of interconnector cable and 500km 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 350MW located in both Welsh and English waters, it is a Nationally Significant Infrastructure Project (NSIP) requiring a Development Consent Order (DCO) under the Planning Act 2008. The application for development consent for the Mona Offshore Wind Project will cover all offshore aspects of the project located within Welsh offshore waters and English offshore waters as well as all onshore aspects of the Mona Offshore Wind Project.

1.1.2.2 The consents, licences and permissions that will be sought by the Applicant for the Mona Offshore Wind Project include:

- A marine licence under the Marine and Coastal Access Act 2009, deemed under the DCO, for licensable activities in English waters and Welsh offshore waters (i.e. all licensable activities related to the offshore wind farm infrastructure located within the Mona Array Area)
- A marine licence under the Marine and Coastal Access Act 2009, from Natural Resources Wales (NRW), for licensable activities within 12 nautical miles (nm) of the Welsh coast (i.e. for the offshore export cables and related works located within the Mona Offshore Cable Corridor (up to Mean High Water Springs (MHWS)).
- This Marine Conservation Zone (MCZ) screening assessment has been prepared in support of both the DCO and marine licence applications.

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 (SoS) 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. This MCZ screening assessment report is intended to inform the assessment required to be undertaken by the regulating authority when considering whether the potential impacts of the Mona Offshore Wind Project will give rise to a significant risk of hindering the conservation objectives of any MCZ.

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 This section provides a summary of the consultation pertinent to the MCZ assessment which has been raised to date through the Mona Environmental Impact Assessment (EIA) Scoping Opinion. 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.

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

Date	Consultee and type of response	Topics
15 June 2022	Planning Inspectorate – Mona EIA 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).
29 November 2022	Benthic ecology, fish and shellfish and physical processes Expert Working Group	Discussion on MCZ screening. Due to the timing of the workshop ahead of publishing the PEIR, discussion outputs will be incorporated into the Environmental Statement.

1.3 Legislative framework

1.3.1.1 In English and Welsh territorial (i.e. within 12nm) 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 Under section 126 of the Marine and Coastal Access Act 2009, public authorities have specific duties for MCZs in relation to certain decisions.

1.3.1.3 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) -
 - (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 MCZ assessment methodology

1.4.1.1 This MCZ 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. Section 126 applies if it is determined through the course of screening that:

- 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 Transmission Infrastructure Scoping Search Area
- MCZs within the Zone of Influence (ZOI) for individual topics:
 - Benthic ZOI comprising a buffer of one mean tidal excursion from the Mona Array Area and Mona Offshore Transmission Infrastructure Scoping Search

Area to capture indirect effects such as those from increased suspended sediment concentrations (SSC) and associated deposition

- Fish ZOI comprising a buffer of one mean tidal excursion from the Mona Array Area and Mona Offshore Transmission Infrastructure Scoping Search Area 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 PEIR 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 capable of significantly affecting the protected/proposed features of those sites within the screening buffers, or any ecological or geomorphological processes on which the conservation objectives of those features may depend. This included a review of outputs from volume 6, appendix 6.1: Physical processes technical report of the PEIR and volume 2, chapter 7: Benthic subtidal and intertidal ecology of the PEIR 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 1, annex 3.2: Underwater sound technical report of the PEIR, volume 2, chapter 8: Fish and shellfish ecology and volume 2, chapter 9: Marine mammals of the PEIR 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 PEIR to further justify screening out MCZs, this evidence has been referenced and justification presented within section 1.5 below.

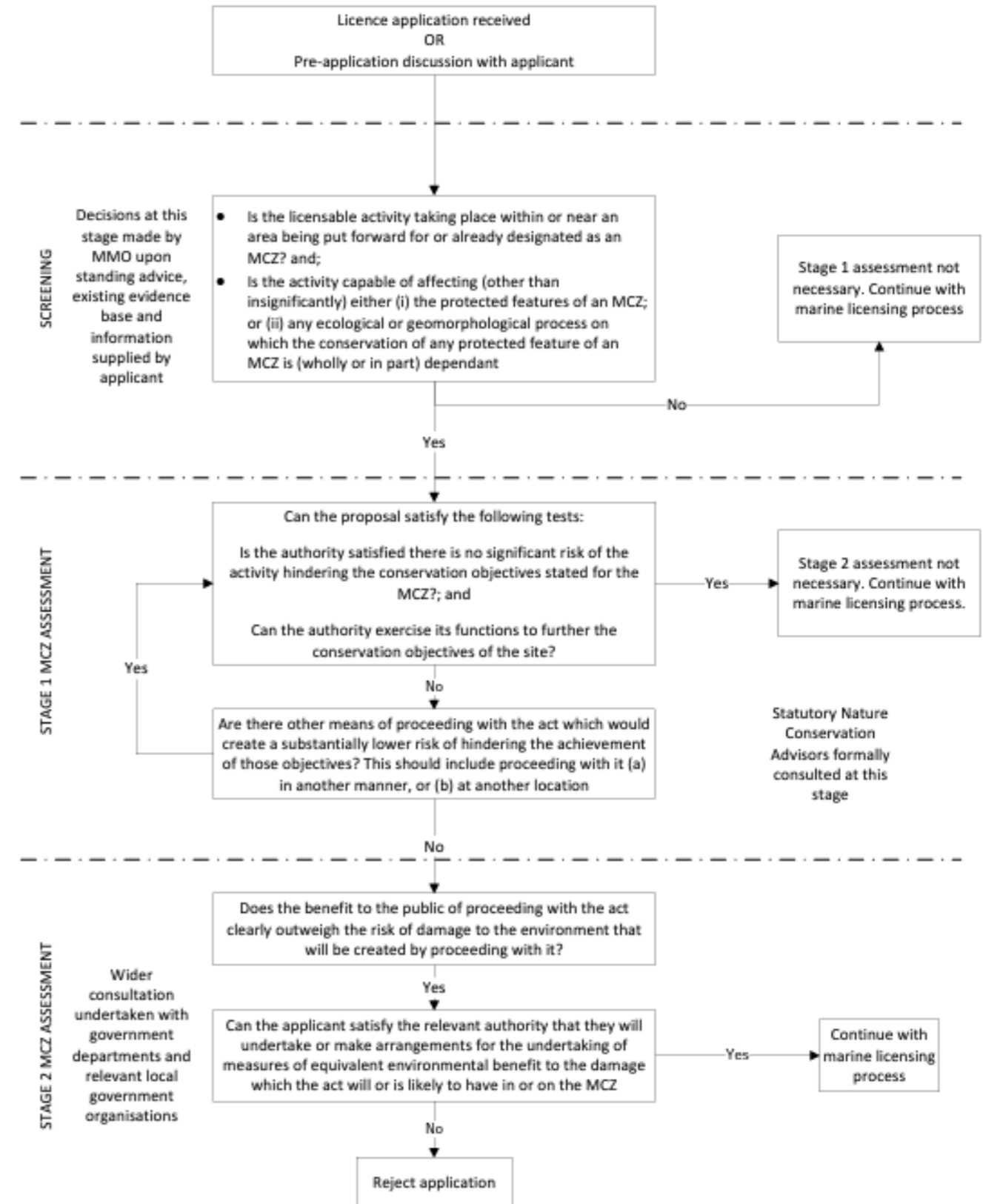


Figure 1.1: Summary of the MCZ assessment process to be used by the MMO in marine licence decision making (MMO, 2013).

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 statutory nature conservation bodies (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)
- 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.

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 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

1.5.1.1 This section documents the MCZ screening for the Mona Offshore Wind Project and builds on the preliminary screening undertaken in the Mona EIA Scoping Report (bpEnBW, 2022). The screening considers all MCZs located within the relevant study areas as shown in Figure 1.2: the regional benthic subtidal and intertidal ecology study area, the Mona fish and shellfish ecology study area, the regional marine mammal study area (i.e. the Irish Sea and wider Celtic Sea), and a 100km buffer of the Mona Array Area for birds.

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 activity is taking place within or near an area being put forward or already designated as an MCZ". The preliminary MCZ screening exercise undertaken in the Mona EIA Scoping Report (bpEnBW, 2022) concluded that the Mona Offshore Wind Project was unlikely to have the potential to directly or indirectly affect the interest features of any MCZ. The following sections use the information presented in the PEIR to build on,

and further refine, the ZOI used in the Mona EIA Scoping Report (as outlined in paragraph 1.4.2.4). These ZOI 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). Whilst the preliminary ZOIs for benthic and fish features, only, were outlined in the preliminary MCZ screening exercise undertaken in the Mona EIA Scoping Report (bpEnBW, 2022), the ZOI for all types of protected feature are considered in this MCZ Screening. The impact pathways and associated ZOI considered within this screening assessment are those that specifically relate to these receptors and draw on technical outputs of the reporting undertaken for the PEIR.

1.5.2 Screening criteria for benthic habitat features of MCZs

1.5.2.1 A total of 10 MCZs located within the regional benthic subtidal and intertidal ecology study area and the Mona fish and shellfish ecology study area have been considered within this screening. Seven of these MCZs are designated for benthic habitat features (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 habitat features of these sites, the following screening criteria have been used for MCZs with benthic features:

- Direct impacts to benthic habitats and species (e.g. those arising from temporary habitat disturbance, long term habitat loss, colonisation of hard structures, electromagnetic fields (EMF), heats effects from cabling) will be confined to within the Mona Array Area and the Mona Offshore Cable Corridor. The Mona EIA Scoping Report identified no physical overlap between the Mona Offshore Wind Project (which comprised, at the time of Scoping, the Mona Potential Array Area and the Mona Offshore Transmission Infrastructure Scoping Search Area) and any MCZ. The boundary of the Mona Array Area is unchanged since the Mona Scoping Report was produced and, whilst the Mona Offshore Cable Corridor has now been defined within the Mona Offshore Transmission Infrastructure Scoping Search Area, there remains no spatial overlap between the Mona Offshore Wind Project and any benthic habitat or species feature of an MCZ (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 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. The ZOI used in the Mona EIA Scoping Report was one mean tidal excursion from the Mona Potential Array Area and the Mona Offshore Transmission Infrastructure Scoping Search Area. Since the Mona EIA Scoping Report was produced, modelling has been undertaken to inform the PEIR and is presented in volume 6, appendix 6.1: Physical processes technical report of the PEIR. 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 ZOI as follows:

- During drilling for foundation installation, plumes of increased SSC with peak concentrations of up to 50mg/l, but average concentrations of typically one fifth of this, are predicted to extend up to approximately 14km (east to west, ~7km in each direction) in the northeast of the Mona Array Area, up to approximately 22km (east to west, ~11km in each direction) in the southeast, and 21km (east to west, ~10.5km 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 300mg/l along the Mona Offshore Cable Corridor and less than 500mg/l within the Mona Array Area are predicted, extending a tidal excursion of approximately 20km (i.e. up to 10km in any 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 100m of the site of release, and concentrations of typically less than 30mm at this distance, with dispersion predicted on successive tides. Sedimentation associated with drilling is predicted to be similarly localised to within 300m of the site of release 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 500mg/l for inter-array and up to 1,000mg/l for export cables) and sedimentation levels of up to 30mm (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 20km (i.e. extending 10km in each direction from the site), with typical levels of less than 50mg/l.
- Modelling presented in volume 6, annex 6.1: Physical processes technical report of the PEIR 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 20km (i.e. 10km in either direction), which corresponds with the tidal excursion. On the basis of the modelling outlined above, a precautionary buffer of 12km has been adopted to screen sites within the ZOI 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 and would therefore not be capable of resulting in anything other than insignificant effects on protected features of an MCZ. Using this buffer, no MCZs are screened in for this criteria.

1.5.2.2 In summary, no MCZs designated for benthic habitat features are likely to be affected, other than insignificantly, by the Mona Offshore Wind Project. As such, no MCZs

designated for benthic habitat features are taken forward for consideration in a Stage 1 assessment.

1.5.3 Screening criteria for fish features of MCZs

1.5.3.1 A total of three MCZs considered within this screening are designated for mobile fish species and are located on the northwest coast of England. 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 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. As discussed in section 1.5.2, there is no spatial overlap between the Mona Offshore Wind Project Boundary and any MCZ (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 as a result of increased underwater sound. Volume 2, chapter 8: Fish and shellfish ecology of the PEIR, provides a comprehensive assessment of the potential for behavioural effects in fish resulting from underwater noise during construction. The assessment in volume 2, chapter 8: Fish and shellfish ecology of the PEIR uses the modelling outputs in volume 1, annex 3.2: Underwater sound technical report of the PEIR 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. 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, it is considered highly unlikely that their habitats would overlap with those areas which may be influenced by construction related underwater sound. As such, it is unlikely that they would be adversely affected by underwater sound 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 occur as a result of increases in SSC and associated deposition. The ZOI applied for SSC and sediment deposition, together with the justification, is as outlined used in section 1.5.2 (i.e. 12km) and no MCZs are screened in on this basis.

1.5.3.2 In summary, no MCZs designated for fish features are likely to be affected, other than insignificantly, by the Mona Offshore Wind Project. As such, no MCZs designated for fish features are taken forward for consideration in a Stage 1 assessment.

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 100km of the Mona Array Area ; 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. 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 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 10.3: Offshore ornithology non-migratory seabird collision risk assessment of the PEIR).
- Direct impacts to ornithological features of MCZs may also comprise disturbance and displacement from preferred foraging areas 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 10.5: Offshore ornithology apportioning assessment of the PEIR and volume 6, annex 10.2: Offshore ornithology displacement assessment of the PEIR) 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 94km from the Mona Array Area. For razorbill at the St Bees Head colony, the expected increase in mortality due to displacement was <0.02 adult birds per annum, for a colony size of 126 birds (see volume 6, annex 10.5: Offshore ornithology apportioning assessment of the PEIR). On this basis, the increase in mortality of <1 adult bird per annum would be indistinguishable against the baseline mortality for the MCZ. As such, the Cumbria Coast MCZ is not screened in for this criteria.
- 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.

1.5.5.2 In summary, no MCZs designated for ornithological features are likely to be affected, other than insignificantly, by the Mona Offshore Wind Project. As such, no MCZs designated for ornithological features are taken forward for consideration in a Stage 1 assessment.

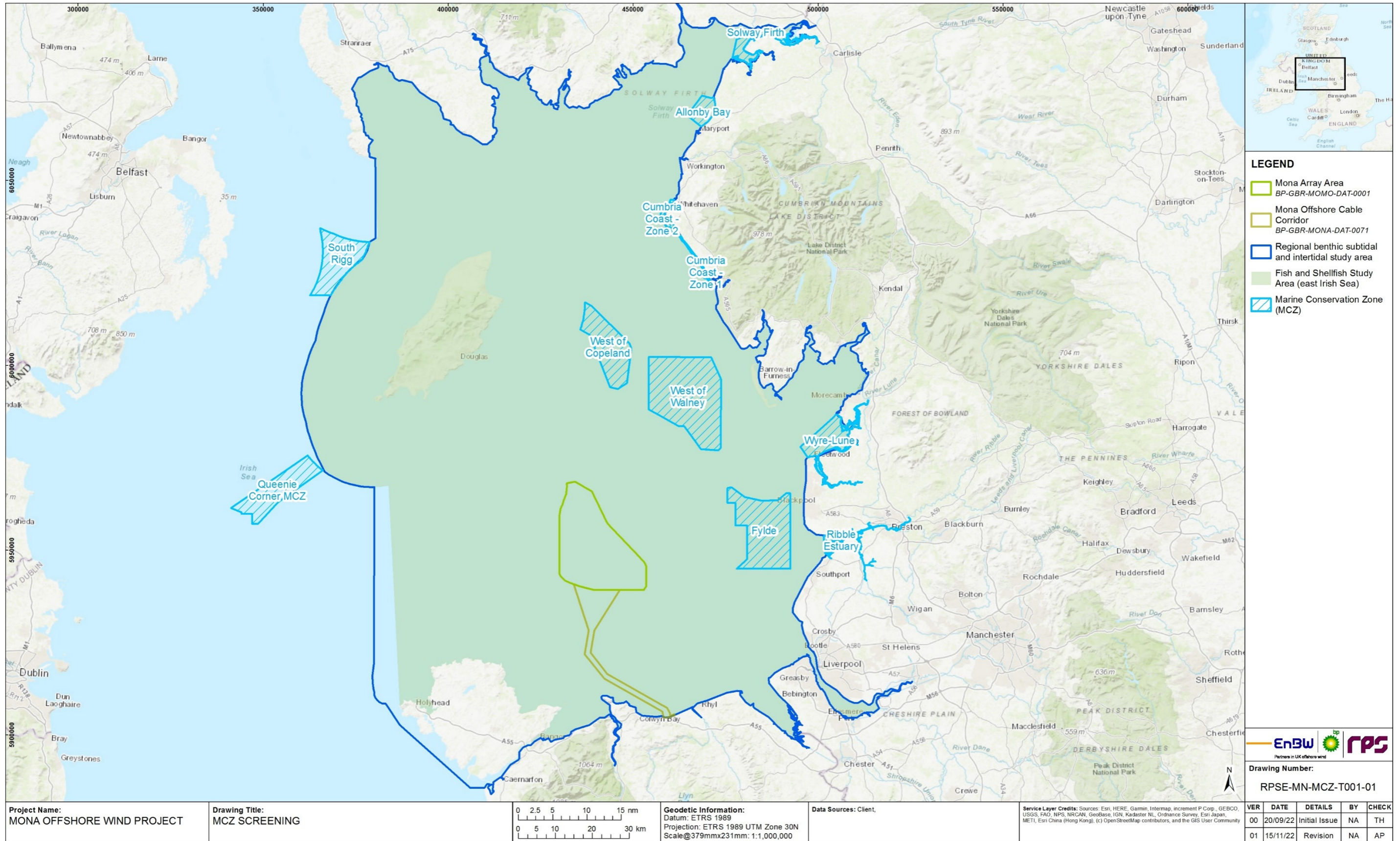


Figure 1.2: MCZs considered within the MCZ screening for the Mona Offshore Wind Project.

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.

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 	24.45	32.13	No potential pathways identified	Screened out – the Fylde MCZ does not spatially overlap with the Mona Offshore Wind Project and falls outside the 12km ZOI 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 	26.99	44.01	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 12km ZOI 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 	27.30	54.13	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 12km ZOI 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>) 	48.45	56.22	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 ZOI for significant behavioural disturbance to smelt, as determined by the assessment presented in volume 2, chapter 8: Fish and shellfish ecology of the PEIR and the modelling outputs in volume 1, annex 3.2: Underwater sound technical report of the PEIR. The Ribble Estuary MCZ also falls outside the 12km ZOI identified for impact pathways associated with increased SSC that have the potential to affect fish features. The Ribble Estuary MCZ 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>) 	52.40	61.69	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 ZOI for significant behavioural disturbance to smelt, as determined by the assessment presented in volume 2, chapter 8: Fish and shellfish ecology of the PEIR and the modelling outputs in volume 1, annex 3.2: Underwater sound technical report of the PEIR. The Wyre Lune MCZ also falls outside the 12km ZOI 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>) 	64.26	85.84	No potential pathways identified	Screened out – the Cumbria Coast MCZ does not spatially overlap with the Mona Offshore Wind Project and falls outside the 12km ZOI 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 megafauna communities Subtidal mud 	65.05	74.38	No potential pathways identified	Screened out – the Queenie Corner MCZ does not spatially overlap with the Mona Offshore Wind Project and falls outside the 12km ZOI identified for impact pathways (i.e. increased SSC and sediment deposition) that have the potential to affect benthic habitat features. The Queenie Corner MCZ has therefore been screened out and does not require a Stage 1 assessment.

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
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 	81.58	102.04	No potential pathways identified	Screened out – the South Rigg MCZ does not spatially overlap with the Mona Offshore Wind Project and falls outside the 12km ZOI 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 	101.96	127.33	No potential pathways identified	Screened out – the Allonby Bay MCZ does not spatially overlap with the Mona Offshore Wind Project and falls outside the 12km ZOI 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.
Solway Firth MCZ	<ul style="list-style-type: none"> Smelt (<i>Osmerus eperlanus</i>) 	121.16	145.22	No potential pathways identified	Screened out – the Solway Firth MCZ does not spatially overlap with the Mona Offshore Wind Project. The site also falls outside the ZOI for significant behavioural disturbance to smelt, as determined by the assessment presented in volume 2, chapter 8: Fish and shellfish ecology of the PEIR and the modelling outputs in volume 1, annex 3.2: Underwater sound technical report of the PEIR. The Solway Firth MCZ also falls outside the 12km ZOI 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.

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 ZOIs 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, operation 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 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 a Stage 1 MCZ assessment is not required for any MCZ for the Mona Offshore Wind Project.

1.7 References

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