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To whom it may concern,

### **Mona Offshore Wind Project Development Consent Order Application – Environmental Statement and Management Plans – EN010137 – Written Representation**

Thank you for consulting JNCC on the Mona Offshore Wind Project Development Consent Order (DCO) Application including the Environmental Statement (ES) and Management Plans. Notification of acceptance for examination by the Secretary of State for Energy Security and Net Zero was received on 2 April 2024.

The advice contained within this minute is provided by JNCC as part of our statutory advisory role to the UK Government and devolved administrations on issues relating to nature conservation in UK offshore waters (beyond the territorial limit). We have subsequently concentrated our comments on aspects of the documents that we believe relate to offshore waters and defer to comments provided by Natural Resources Wales Advisory (NRW-A) for aspects relating to inshore waters and Natural England (NE) where appropriate.

The advice below relates to marine ornithology, marine mammals, and offshore benthic ecology and is captured under the following headings:

- **Error! Reference source not found.**
- Marine ornithology comments
- Marine mammal comments
- Benthic ecology (offshore) comments

The following documents were reviewed in providing this response:

#### **Environmental Statement:**

- Volume 1, Chapter 3: Project description (APP-050)
- Volume 1, Chapter 5: Environmental Impact Assessment methodology (APP-052)
- Volume 2, Chapter 1: Physical processes (APP-053)
- Volume 2, Chapter 2: Benthic subtidal and intertidal ecology (APP-054)
- Volume 2, Chapter 4: Marine mammals (APP-056)
- Volume 2, Chapter 5: Offshore ornithology (APP-057)
- Volume 2, Chapter 11: Inter-related effects – offshore (APP-063)
- Volume 5, Annex 3.1: Underwater sound technical report (APP-079)
- Volume 5, Annex 5.1: Cumulative effects screening matrix (APP-084)
- Volume 5, Annex 5.2: Transboundary impacts screening (APP-085)
- Volume 6, Annex 1.1: Physical processes technical report (APP-086)
- Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report (APP-087)
- Volume 6, Annex 4.1: Marine mammal technical report (APP-090)
- Volume 6, Annex 5.1: Offshore ornithology baseline characterisation report (APP-091)
- Volume 6, Annex 5.2: Offshore ornithology displacement technical report (APP-092)
- Volume 6, Annex 5.3: Offshore ornithology collision risk technical report (APP-093)
- Volume 6, Annex 5.5: Offshore ornithology apportioning technical report (APP-095)
- Volume 6, Annex 5.6: Offshore ornithology population viability analysis technical report (APP-096)
- Volume 8, Annex 2.2: Climate change risk assessment (APP-183)

#### **Habitat Regulations Assessment (HRA):**

- Stage 1 Screening report (APP-034)
- Stage 2 Information to support an Appropriate Assessment
  - Part 1, Introduction and background (APP-031)
  - Part 2, Special Areas of Conservation (SAC) assessments (APP-032)
  - Part 3, Special Protection Areas and Ramsar sites assessments (APP-033)
- HRA integrity matrices (APP-035)
- Marine Conservation Zone screening report (APP-036)

#### **Offshore Plans:**

- Mitigation and monitoring schedule (APP-196)
- Outline underwater sound management strategy (APP-202)
- Outline offshore operations and maintenance plan (APP-198)
- Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels (APP-203)
- Outline marine mammal mitigation protocol (APP-207)
- Offshore in-principle monitoring plan (APP-201)
- Mona Array Area – site characterisation report (APP-205)
- Offshore cable corridor – disposal site characterisation report (APP-206)

#### **draft Development Consent Order (dDCO):**

The Joint Nature Conservation Committee (JNCC) is the statutory adviser to Government on UK and international nature conservation, on behalf of the Council for Nature Conservation and the Countryside, Natural Resources Wales, Natural England and NatureScot. Its work contributes to maintaining and enriching biological diversity, conserving geological features and sustaining natural systems.

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- Draft Development Consent Order (AS-010)

## Marine ornithology comments

### Overall comments

1. We disagree with several approaches the Applicant has taken to the assessment of offshore ornithology within the Environmental Statement and the HRA. In addition, there are multiple errors within the tables and text of the application documentation and errors when using values in subsequent stages of the assessment, and many aspects of the assessment have been difficult to follow in terms of what has been done or where parameters used have come from. Therefore, JNCC currently does not have confidence in the results, nor are we able to agree with the overall conclusions, either within the EIA or the HRA, particularly with regards to Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro Special Protected Area (SPA).
2. Further, aspects of JNCC advice appear to have been misinterpreted, for instance foraging values and agreements and disagreements on breeding Biologically Defined Minimum Population Scales (BDMPS) reference populations. Some aspects of JNCC advice also appear to have been taken on board in some circumstances but not in others, despite agreement during pre-application meetings and correspondence. For instance, specific displacement rates being used in the HRA and EIA. We highlight these disagreements, errors, and unclear aspects in detail below. We have identified errors to the best of our ability with the time available, but this may not be an exhaustive list of all errors, and we recommend that a full and thorough check of all tables and in-text values is conducted. We note that it is stated in several places in the Applicant's Response to Relevant Representations (PDO-008) that various elements of the application have been checked and are either correct or will be included in the Errata document to be submitted at Deadline 1. We look forward to receiving and reviewing the Errata document.
3. Please note that JNCC can only comment on sites for which we have jurisdiction (UK marine sites wholly or partly in waters beyond 12nm). We note that NRW and Natural England (NE) have been involved in pre-application discussions and defer to those agencies on their respective sites. We also note that a number of SPAs in Irish and Scottish waters are screened in at Likely Significant Effect (LSE), and recommend consultation with the relevant nature conservation advisers. There is a risk of not receiving advice on specific SPAs within other nations, or on the UK Marine Protected Area (MPA) network if the relevant SNCBs are not consulted.

### Presenting SNCB recommended approaches to assessments in Application documentation

4. We recommend that the applicant presents both their preferred approach and JNCC's advised approach throughout the EIA/HRA. To that end JNCC notes the instruction to the Outer Dowsing Offshore Wind Project by the Examining Authority in that

Examination in their Rule 17 letter dated 3<sup>rd</sup> July 2024 (Macarthur, 2024), requesting the same.

- a. *“The ExA appreciates that the Applicant may not entirely agree with the preferred methodological approaches on some matters that have been referenced in the RRs from NE [RR-045], the Marine Management Organisation [RR-042] the RSPB [RR-056] and the Environment Agency [RR-018]. Nevertheless, where differences of opinion have been detailed in the aforementioned RRs the ExA considers it to be very important that it is presented with assessment outputs based on the methodological approach adopted by the Applicant as well as the approach respectively advocated by these organisations, and which make use of the most up to date data available to the Applicant.”*

5. Therefore, we recommend that the approaches and parameters that we advise should be used are presented and taken through the impact assessment in the EIA and the HRA. This also includes approaches and parameters which we understood to have been previously been agreed between JNCC and the applicant during pre-application consultation, but which, in the application documents submitted to date, go against that previous agreement.

#### **Updating Application Documentation (ES, HRA, and associated documents and appendices)**

6. As highlighted in our Relevant Representations (RR-033) and in our overall comments on offshore ornithology above, JNCC has a number of issues of concern in the current application documentation. We note that in response to our Relevant Representations, the Applicant has accepted that errors were made in these assessments and undertakes to produce an Errata document highlighting where errors have been made and the correct values that should have been used. JNCC welcomes this.
7. Whilst we welcome the Applicant’s response to this issue, we are concerned that providing an update in this manner risks updated assessment parameters and impact totals not being readily available for use in the in-combination/cumulative assessments of future proposed projects. To illustrate this risk, we note that the Applicant themselves had difficulty in obtaining impact totals from other projects where updated parameters have been contained in supplemental documentation submitted to Examination rather than the original ES (see comments in paragraphs 64 to 65 below, where updated totals for the Erebus project were contained in a supplemental document submitted to Examination, rather than and updated ES).
8. We are therefore concerned that any revisions to Mona OWF parameters/outputs would be similarly difficult to find for cumulative/in-combination assessments by future projects were they to be contained in a separate document submitted to Examination and advise that updated Application documentation is produced (ES, HRA and associated documentation/appendices).

### Multiple, potentially compounding errors

9. JNCC noted in our Relevant Representations (RR-033) that multiple errors have occurred within the assessments for the same SPA/qualifying feature. We are concerned that these errors have been considered individually (see Applicant's responses to our Relevant Representation comments (PDA-008)) without an overview of how these errors may compound at each stage of an assessment.
10. By way of illustration the assessment of displacement impacts for Atlantic Puffin has errors in:
  - Incorrect Mean Seasonal Peak
  - Not presenting the full range of displacement and mortality rates from the displacement matrix
  - Incorrect foraging ranges
  - Incorrect apportioning of impacts to adults and immatures during the non-breeding season
  - Incorrect apportioning of impacts to SPAs (Applicant's response to our Relevant Representation (PDA-008) is that "no SPAs are located between 250.8 and 265.4 km, and therefore, no SPAs have been excluded that should have otherwise been included in the assessments." However, the Skomer, Skokholm and Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA occurs within this distance to the proposed Project, of which breeding Atlantic puffin is a qualifying feature. In addition, there are multiple other SPAs within foraging range of the Mona Array, for instance Lambay Island SPA, Rathlin Island SPA, and Saltee Islands SPA.
11. Similarly, the collision impacts on black-legged kittiwake has errors in:
  - Incorrect seasonal collision mortality estimates
  - Not presenting the full range of displacement/mortality within the displacement matrix
  - Incorrect apportioning of impacts to adults and immatures in the breeding season
  - Incorrect apportioning of impacts to adults and immatures during the non-breeding season
12. We illustrate this point in the two tables below with an example of the compounded differences in parameters used at different stages, for black-legged kittiwake qualifying feature of Rathlin Island SPA. The differences between JNCC's recommended approach (Table 1) and that taken by the Applicant (Table 2) are in the seasonal definitions, the displacement and mortality rates, the breeding season age class apportioning, and the non-breeding season age class apportioning, which ultimately results in very different seasonal and annual apportioned adult mortalities. It is therefore difficult to know whether this would result in impacts greater than 1% baseline mortality for any feature of any SPA and hence whether an SPA feature should have been taken through to Population Viability Analysis (PVA). On the basis of this, we do not currently consider that a sound conclusion of no AEOSI can be made. In addition, updated outputs should be provided in updated application documentation (ES, HRA

and associated documentation/appendices) so that they are available for cumulative and in-combination assessments of future projects.

Table 1. Black-legged kittiwake at Rathlin Island SPA example of apportioned impacts using the JNCC recommended approach.

	Pre-breeding	Breeding	Post-breeding	Annual	Reference
Collisions	8.74	15.52	8.41	32.67	Recalculated using Volume 6, Annex 5.3: Offshore ornithology collision risk modelling technical report (APP-093) Table 1.6 and Applicant's Response to Relevant Representations (PDA-008) RR-033.10
Displacement	62	25	39	126	Volume 2, Chapter 5: Offshore ornithology (APP-057) Table 5.34 (70% displacement & 10% mortality)
Collisions & mortality	70.74	40.52	47.41	158.67	Collisions plus displacement mortalities
Adult percentage	100	95.23	100	N/A	Volume 6, Annex 5.5: Offshore ornithology apportioning technical report (APP-095) Table 1.4
Adult mortalities	70.74	38.59	47.41	156.74	Mortalities * adult proportion
SPA apportioning value	3.37	4.9	1.91	N/A	Volume 6, Annex 5.5: Offshore ornithology apportioning technical report (APP-095) Table 1.17 & 1.18
Apportioned collisions	2.4	1.9	0.9	5.2	Adult mortalities * SPA apportioning value



Table 2. Black-legged kittiwake at Rathlin Island SPA example of apportioned impacts using the Applicant's approach.

	Pre-breeding	Breeding	Post-breeding	Annual	Reference
Collisions	16.09	8.08	8.5	32.67	Volume 2, Chapter 5: Offshore ornithology (APP-057) Table 5.38
Displacement	3	1	2	6	Volume 2, Chapter 5: Offshore ornithology (APP-057) Table 5.34 (30% displacement & 1% mortality)
Collisions & mortality	19.09	9.08	10.50	38.67	Collisions plus displacement mortalities
Adult percentage	53	87.68	53	N/A	Volume 6, Annex 5.5: Offshore ornithology apportioning technical report (APP-095) Table 1.4
Adult collisions	10.12	7.96	5.57	23.64	Mortalities * adult proportion
SPA apportioning	3.37	4.9	1.91	N/A	Volume 6, Annex 5.5: Offshore ornithology apportioning technical report (APP-095) Table 1.17 & 1.18
Apportioned collisions	0.3	0.4	0.1	0.8	Adult mortalities * SPA apportioning value

### Workings need to be shown throughout

13. We follow the logic of the worked example provided in the Applicant's Response to Relevant Representations (PDA-008) to generate HRA values for great black-backed gull from the Isles of Scilly SPA. We suggest that the same calculations are provided within the relevant HRA documents, such as within Appendix A.2 of the HRA Stage 1 Screening Report (APP-034). Additional columns should include: Seasonal abundance for displacement assessments; Displacement and mortality rates used; Collision estimates; SPA apportioning values; and Age-class apportioning values. The Applicant may wish to provide separate tables for their preferred approach and for SNCB advised approach.

### Misrepresented SNCB advice

14. We welcome that the Applicant acknowledges (Applicant's Response to Relevant Representations (PDA-008)) that species group avoidance rates presented in

Ozsanlav-Harris et al. (2023) are incorrectly referred to as “JNCC avoidance rates” within certain documents, specifically Volume 2, Chapter 5: Offshore ornithology (APP-057) and Volume 6, Annex 5.5: Offshore ornithology apportioning technical report (APP-095).

15. Similarly, the Applicant acknowledges (Applicant’s Response to Relevant Representations (PDA-008)) that JNCC advice regarding foraging ranges, particularly those of Atlantic puffin, common guillemot, and razorbill, has been misinterpreted, but the correct values have been applied and/or there is no impact on the assessment nor on the conclusions drawn.
16. Although these corrections may seem semantic as there is neither a material impact on the assessment presented nor on the conclusions drawn, JNCC’s view is that the texts not only significantly misrepresent JNCC advice, but puts these misrepresentations into the public domain as the JNCC position. This could then be relied upon erroneously by future projects. We therefore strongly advise that the errors should be corrected by submitting full updated and revised versions of the affected chapters (see also paragraphs 6 to 8 above).

#### **Deviating from previously agreed approaches**

17. JNCC remain concerned that previously agreed approaches (during EWG meetings) have not been implemented in the presented assessments.
18. It had been agreed that:
  - Collision impacts using the SNCB-recommended input parameters would be taken through all stages of the assessment, in addition to those using the Applicant’s preferred input parameters (APP-042, D.8.1, item no. 4). However, it isn’t clear whether the collision estimates using the Applicant’s preferred input parameters have solely been taken through the impact assessment, or whether the SNCB approach has been taken through. We require clarification on this point.
  - Age classes would be determined from Digital Aerial Survey (DAS), otherwise all adult-type birds would be assumed to be adults (APP-042, D.8.1, item no. 5). As it stands, age class apportioning based on DAS has only been undertaken for Northern gannet, herring gull, great black-backed gull, and lesser black-backed gull in the breeding season. However, for black-legged kittiwake, Northern gannet, herring gull, great black-backed gull, and lesser black-backed gull in the non-breeding season, and common guillemot, razorbill, and Manx shearwater in the breeding and non-breeding seasons, age class apportioning has been undertaken using stable age structures from Furness (2015). In addition, black-legged kittiwake age class apportioning in the breeding season has been carried out using a combination of DAS age classes and age-specific survival rates.



**Measures to mitigate and avoid displacement by vessels of red-throated diver and common scoter in the Liverpool Bay/Bae Lerpwl SPA**

19. Table 1.1 of [APP-203](#) appears to suggest that JNCC have deferred to NRW following EWG06, on the topic of vessel movements at the landfall to install the export cable which would not be subject to seasonal restrictions. However, JNCC does not have the same recollection of this position, and the minutes of EWG 06 also do not match this position. The landfall is within the Liverpool Bay/Bae Lerpwl SPA, for which JNCC has joint responsibility with NRW and NE. Our position in the agreement log ([APP-042](#), D.9, item 22) is “*No justification is given for the need to do this during winter. It is also not clear what “vessel movements” actually means. For instance, how many and long [sic] will these vessels be in the SPA? More information is required before JNCC can fully agree to this approach.*”. The trenchless works on the intertidal zone including up to eight vessel movements at the landfall over the winter period ([APP-033](#)) sections 1.6.3.48 and 1.6.3.63), which is an exception to the seasonal restriction on cable installation works (see seasonal restriction details in [APP-203](#), section 1.3.1.1). Any disturbance impact to features of the SPA will be temporary for the time of the vessel presence, therefore JNCC do not expect this temporary activity to result in an AEOSI. It is not clear where will vessels transit to and from during these works? Clarification is required before JNCC can fully agree to this approach. JNCC raised these queries in response in the agreement log ([APP-042](#), D.9, item 22), but we have yet to receive a direct response
20. We welcome suggestions to minimise impacts to marine mammals and rafting birds. However, as it currently stands it is unclear what measures relate to which activity or receptor, and when the measures are or are not applied. For example:
- Table 1.2 ([AAP-203](#)) describes vessel activities and whether such measures will apply. It is unclear why measures would apply to vessels travelling to the Mona Offshore Cable Corridor and Array Area within and outside Liverpool Bay/Bae Lerpwl SPA, yet “*Vessels installing export cables outside the Liverpool Bay/Bae Lerpwl SPA*” and “*Vessels involved in intertidal trenchless installation within Liverpool Bay/Bae Lerpwl SPA*” are excluded from mitigation.
  - Related to this, no detail is given in this table as to which activities the measures fully apply to and which in part apply to, and where measures only apply in part, which measures would not be applied to which activities. No detail is provided on where cable installation vessels will travel from in order to reach the export cable corridor outside of the Liverpool Bay/Bae Lerpwl SPA. It is therefore possible that these vessels will transit across the SPA. Clarification should be provided as to why this activity is excluded from the proposed measures. It also isn’t entirely clear what is actually being referred to as “*measures*” throughout the document. There are “*Proposed measures applicable to marine wildlife*” and “*Proposed measures specific to rafting birds*”. When Table 1.2 references the measures which apply, which measures does this mean? Similarly, in section 1.4 exceptions to measures are described. Which measures would not apply under these exceptions?
  - Some statements within document [APP-203](#) appear to be contradictory. For example there appears to be a measure whereby cable installation activities in

the Liverpool Bay/Bae Lerpwl SPA will not take place during 1<sup>st</sup> November to 31<sup>st</sup> March (section 1.3.1.1). It is also stated that where it is necessary for cable laying vessels to go outside of established navigational routes during transit to/from port and working areas, routes will be pre-selected to avoid locations where birds are known to aggregate (section 1.3.1.2). However, it is then suggested that there is an exception to the measures proposed, whereby the measures don't apply to vessels actively laying cable in areas that coincide with known areas of bird aggregations (1.4.1.1). These statements appear to directly contradict one another. Furthermore, we question why there would be a need for an exception, such that the measures don't apply to vessels actively lay cables in areas that coincide with known areas of bird aggregations. Neither document APP-203 or APP-200 (Outline vessel traffic management plan) describe the ports and shipping routes to be used to transit to and from the array and cable corridor. Therefore, it is not entirely clear how a view as been formed that a seasonal restriction would only be required for export installation vessels within Liverpool Bay/Bae Lerpwl SPA. There is no evidence that vessels would not need to go outside of existing shipping routes in order to access the array or cable corridor during the winter.

21. In addition, as currently drafted, the DCO neither specifies the period during which relevant measures are required (November to March inclusive for red-throated diver and common scoter), nor does it require the agreement of the JNCC, which has joint responsibility for the Liverpool Bay/Bae Lerpwl SPA. We therefore request the DCO be amended as per our additions in italics to read:

18.— (1) No part of the authorised scheme may commence until the following (insofar as relevant to that activity or phase of activity) have been submitted to and approved in writing by NRW-*Licensing*, in consultation with the relevant statutory nature conservation bodies (*NRW Advisory and JNCC*), Trinity House and the MCA as appropriate—

(e) an offshore environmental management plan covering the period of construction and

operation to include details of—

(vi) measures to minimise disturbance from transiting vessels to marine mammals, and rafting birds;

*(vii) works associated with the installation and/or protection of the cables will not be carried out within the Liverpool Bay/Bae Lerpwl SPA during the most sensitive time period of 1st November to the 31st March inclusive; and*

(viii) measures to minimise the potential spread of invasive non-native species;

22. These advised amendments are in alignment with the DCOs for the approved **East Anglia One North** and **East Anglia Two Offshore Wind Farms**, and the proposed DCO for the refused **Thanet Offshore Wind Farm Extension project**.

23. In our Relevant Representations ([RR-033](#)), JNCC made the recommendation for seasonal restrictions on offshore cable laying to apply to a 2km and 2.5km buffer (for red-throated diver and common scoter, respectively) around the Liverpool Bay/Bae Lerpwl SPA. Having reviewed the response by the Applicant to those comments ([PDA-008](#), [RR-033.12](#)), we are of the view that this would not be required for a conclusion of no Adverse Effect on Integrity to be reached.

#### **Cumulative and in-combination assessments**

24. JNCC raised concerns over the approach to both the Cumulative (EIA) and In-combination (HRA) assessments in our Relevant Representations ([RR-033](#)). We note the Applicant's response to those concerns ([PDA-008](#), [RR-033.18](#)). Whilst no progress has been made at the time of submission of these Written Representations, we wish to make the Examining Authority aware that there are on-going discussions with the Applicant on this matter, and we will provide any updated comments we have in due course.

#### **Comments on specific elements**

The following documents were reviewed in providing this response:

- Environmental Statement – Volume 2, Chapter 5 Offshore ornithology ([APP-057](#))
- Environmental Statement – Volume 6, Annex 5.1: Offshore ornithology baseline characterisation report ([APP-091](#))
- Environmental Statement – Volume 6, Annex 5.2: Offshore ornithology displacement technical report ([APP-092](#))
- Environmental Statement – Volume 6, Annex 5.3: Offshore ornithology collision risk technical report ([APP-093](#))
- Environmental Statement – Volume 6, Annex 5.5: Offshore ornithology apportioning technical report ([APP-095](#))
- Environmental Statement – Volume 6, Annex 5.6: Offshore ornithology population viability analysis technical report ([APP-096](#))
- Environmental Statement – HRA Stage 1 Screening report ([APP-034](#))
- Environmental Statement – Part 3: Special Protection Areas and Ramsar sites Assessments ([APP-033](#))
- Environmental Statement – HRA integrity matrices ([APP-035](#))
- Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels ([APP-203](#))
- Draft Development Consent Order ([APP-023](#))

#### **Seasonal definitions**

##### **Volume 2, Chapter 5: Offshore ornithology ([APP-057](#)) Table 5.13 and 5.14**

25. Seasonal definitions differ across table 5.13 and 5.14, so it is not clear which is being used in each circumstance it is used. As this could influence seasonal impact values, without this being clarified, we cannot agree the results of the EIA and HRA rule out there being an adverse effect beyond reasonable scientific doubt.

**Volume 2, Chapter 5: Offshore ornithology (APP-057) Tables 5.38, 5.39, 5.42, and 5.44**

26. For some species it would appear, though it is unclear, that impacts for a particular month which is within two BDMPS seasons have been split between the two seasons. Clarity is required if this is the case, and when this has been undertaken, and whether this is an appropriate use of the survey data, for instance when within a month the survey was carried out. For example, if data was calculated at one end of a month, is it appropriate to halve this value and associate one half with the other end of the month? Without this being clarified, we cannot agree the results of the EIA and HRA rule out there being an adverse effect beyond reasonable scientific doubt.
27. If it is the case that impacts for a particular month which is within two seasons have been split between the two seasons, it is unclear whether this approach is appropriate when put into context of seasonal reference populations (e.g. Furness (2015)). Do the seasonal reference populations used also split populations in the one month between seasons? Without this being clarified, we cannot agree the results of the EIA and HRA rule out there being an adverse effect beyond reasonable scientific doubt.
28. Furness (2015) defines the full breeding season for Northern gannet as March-September. Therefore, we advise this definition is used, and then adjust the non-breeding season definitions in Furness (2015) accordingly to ensure no months are considered in two seasons. This would make the post-breeding season October to November, and the pre-breeding season December to February.
29. Furness (2015) defines the full breeding season for black-legged kittiwake as March-August. Therefore, we advise this definition is used, and then adjust the non-breeding season definitions in Furness (2015) accordingly to ensure no months are considered in two seasons. This would make the post-breeding season September to December, and the pre-breeding season January to February.
30. Furness (2015) defines the full breeding season for Manx shearwater as April to August. Therefore, we advise this definition is used, and then adjust the non-breeding season definitions in Furness (2015) accordingly to ensure no months are considered in two seasons. This would make the post-breeding season September to October, and the pre-breeding season March. Therefore, the post-breeding mean seasonal peak should be calculated as the mean from year 1 (25 individuals) and year 2 (1 individual), giving a mean of 13 individuals, not 182 individuals as stated in the Applicant's response to RR-33.10 (PDA-008). A seasonal mean of 182 individuals appears to have been calculated assuming the post-breeding season is August to October (which is incorrect), as opposed to September to October.
31. Furness (2015) defines the full breeding season for great black-backed gull as late March-August. Therefore, we advise this definition is used, and then adjust the non-breeding season definitions in Furness (2015) accordingly to ensure no months are considered in two seasons. This would make the non-breeding season September to February.

32. Furness (2015) defines the full breeding season for lesser black-backed gull as April-August. Therefore, we advise this definition is used, and then adjust the non-breeding season definitions in Furness (2015) accordingly to ensure no months are considered in two seasons. This would make the post-breeding season September to October, the winter season November to February, and pre-breeding season as March.
33. We advise that full breeding seasons are used, and therefore monthly density estimates are not split for input into the Collision Risk Modelling (CRM). This is also due to the dates when the digital aerial surveys were carried out. The majority of surveys were carried out during the beginning of the month; therefore it is debatable whether it is appropriate to assume that the abundance is sufficiently representative to assign half the value to the latter half of the month.

### Foraging ranges

#### HRA Stage 1 Screening Report (APP-034) Table 1.2 and 1.7

34. We disagree with the application of foraging ranges for Atlantic puffin. Although breeding season apportioning has not been carried out, our view is that it should be when using the correct Mean Season Peak value (see paragraph 36 on the issue of incorrect Mean Season Peak calculation), therefore it is important to use the correct foraging range. It is not accurate to state, in Tables 1.2 and 1.7 of the HRA Stage 1 Screening Report (APP-034), that “JNCC requested (via their S42 response) that all SPAs to the north of the Mona Offshore Wind Project within 265.4km be considered for Atlantic puffin.”. In JNCC correspondence to the Applicant on 28 June 2023 (APP-042, D.6.2), we advised “We confirm that the foraging range to use for Atlantic puffin is 265.4km (MM+SD). Woodward et al. (2019) state (page 138) that “As was the case for common guillemot and razorbill, foraging distances travelled by Atlantic puffin from Fair Isle are higher than those at most other sites (RSPB dataset), although they are not as exceptional when compared to other sites as those of the other two auk species” and “Observations of birds carrying fish have been made at distances of 250km from the Faeroe Islands (Harris & Wanless 2011), offering further speculative evidence that Atlantic puffins forage at longer distances than the other auk species. Hence the distances observed from Fair Isle and Hermaness should not necessarily be considered exceptional until more data and data from additional colonies have been collected, particularly data from colonies where local prey availability may be greater”. Therefore, we advise using the generic mean max +1SD value as stated in Table 5.”. Therefore, we advise that the foraging range within Table 5 of Woodward et al. (2019) ( $137.1 \pm 128.3 = 265.4\text{km}$ ) should be applied to all SPAs. There is no exception to this value for Atlantic puffin. This value should be used throughout. Without this error and other errors being fixed, we cannot agree the results of the EIA and HRA rule out there being an adverse effect beyond reasonable scientific doubt.

#### HRA Stage 1 Screening Report (APP-034) Table 1.2 and 1.7

35. We disagree with the application of foraging ranges for common guillemot and razorbill. It is not accurate to say, in Tables 1.2 and 1.7 of the HRA Stage 1 Screening Report



(APP-034), that “JNCC requested via their S42 response all SPAs to the north of the Mona Offshore Wind Project within 153.7km be considered for common guillemot” and “JNCC requested via their S42 response all SPAs to the north of the Mona Offshore Wind Project within 164.6km be considered for razorbill”. We do recommend that these values are applied in certain circumstances. However, these circumstances are not “all SPAs north of Mona”, the circumstances are for all Northern Isle SPAs. Therefore, it is unclear whether the correct SPAs and other sites have been screened in with regard to Atlantic puffin, common guillemot, and razorbill. It is therefore also unclear whether the calculations in Volume 6, Annex 5.5: Offshore Ornithology apportioning technical report (APP-095) are correct, and subsequently, whether any of the values relevant to these species and SPAs in the HRA are accurate.

### **Displacement assessments**

#### **Volume 2, Chapter 5: Offshore ornithology (APP-057) Table 5.25**

36. The incorrect Mean Seasonal Peak abundance for inputting into the displacement matrix appears to have been calculated for Atlantic puffin in the non-breeding season. Comparing Volume 6, Annex 5.1: Offshore Ornithology Baseline Characterisation Technical Report (APP-091) Table 1.38, Volume 6, Annex 5.2: Offshore Ornithology Displacement Technical Report (APP-092) section 1.4.3, and Volume 2, Chapter 5: Offshore ornithology (APP-057) Table 5.13 and 5.14, suggests that the Mean Seasonal Peak should be 22 for Atlantic puffin during the non-breeding season, not 0 as is stated in APP-057 Table 5.25. Therefore, the predicted displacement mortalities during both the non-breeding season and annually may be incorrect. This may then have implications for the subsequent assessment, such as the need for apportioning of impacts. Therefore, multiple SPAs may not have been correctly treated at the LSE screening stage, and SPAs may not have been taken through to the Appropriate Assessment. We recommend a thorough review of the Mean Seasonal Peak calculation and the need for any subsequent assessment. It is necessary to carry out this review in order to carry out a robust HRA. This review should also apply to other species assessed for displacement impacts.

#### **Volume 2, Chapter 5: Offshore ornithology (APP-057) section 5.7.2.11 to 5.7.2.27 and HRA Stage 1 Screening Report (APP-034) section 1.4.6.17**

37. We do not agree that single values of displacement and mortality should be used for analysis of population impacts, as the Applicant has suggested in APP-057 section 5.7.2.11 to 5.7.2.27. As advised in the Joint SNCB Interim Displacement Advice Note, we advise that a range of displacement mortality values are taken through to the assessment of population impacts (SNCBs, 2022). We specifically advise that single figures are not used. Whilst we would not base our advice solely on the worst-case likely scenario, it is important to look at the range of likely scenarios in order to determine whether there is a realistic possibility of impact that would need further consideration (i.e. through a Population Viability Analysis).
38. For most species, the evidence suggests that there is a range of displacement rates occurring at operational wind farms, including the upper end of the SNCB-advised range, and sometimes beyond. For example, with regard to the evidence of



displacement rates and distance, Pesckho *et al.* (2023) observed a reduction of 91% of common guillemot within offshore wind farms plus a 1km buffer, and 76% within offshore wind farms plus a 10km buffer, in autumn. In winter, they found a reduction of 67% within offshore wind farms plus a 1km buffer, and 50% within offshore wind farms plus a 10km buffer. Guillemot density in autumn was significantly affected up to a mean distance of 19.5km (range 18–21km) with a reduction of 79% within this area. Guillemot density in winter was significantly affected up to a mean distance of 16.5km (range 15–18km) with a reduction of 51% within this area. In addition, Pesckho *et al.* (2020a) found a reduction in guillemot densities during the breeding season inside offshore wind farms of 63% (75% when the blades were turning). Further, a study by Pesckho *et al.* (2020b) found a 63% reduction in guillemot density in the wind farm plus a 3km buffer, and a 49% reduction in the wind farm plus a 9km buffer during spring. A 44% reduction was found in the wind farm plus a 3km buffer during the breeding season. Therefore, we regard a 70% displacement rate to be within a potential range of displacement. This variation in displacement rates is why we advise that a range of potential impacts are considered.

39. There is currently no empirical evidence of mortality rates of displaced birds, however the individual-based model SeabORD has been used to investigate the potential ranges of mortality for select species and SPAs. This suggested that mortality rates could occur within the 1-10% range advised by SNBCs, but could also be higher, e.g. up to 14.5% for razorbill (Searle *et al.*, 2020). Therefore, we regard a 10% mortality rate to be within a potential range of mortality. This variation in mortality rates is why we advise that a range of potential impacts are considered.
40. Where the 1% threshold of baseline mortality is surpassed, we recommend further investigation is carried out via a PVA (for both the scenario of displacement and mortality rates exceeding 1% baseline mortality, and the worst-case scenario of displacement and mortality rates). A single value of mortality from displacement doesn't give a full picture of the range of potential impacts, and indicates false precision in this estimate. Therefore, we do not recommend that single estimates of displacement are relied upon when making decisions.
41. For the EIA, we have confidence that annual impacts against the largest BSMPS population do not exceed 1% baseline mortality, and further investigation (e.g. through PVA) would not be required in this case, at the worst-case scenario of displacement and mortality rates for each species.
42. However, given the issues on assigning age classes to individuals highlighted below (paragraph 48 to 51) we do not have the same confidence for HRA. The Applicant has not provided SPA-apportioned displacement matrices within the documentation. The displacement and mortality rates used can make a large difference to the magnitude of impact (see comparative examples of displacement mortalities for black-legged kittiwake in table 1 and 2 above). It is therefore difficult to know whether any combination of displacement and mortality rates would result in impacts greater than 1% baseline mortality for any feature of any SPA. Therefore, it is unclear whether an

SPA feature should have been taken through to PVA. On the basis of this, we do not currently consider that a sound conclusion of no AEOSI can be made.

43. We strongly advise that the application documents are updated with this information.

#### **Collision risk modelling**

**Volume 2, Chapter 5: Offshore ornithology (APP-057) Tables 5.38, 5.39, 5.40, 5.41, 5.42, 5.43, 5.44, 5.45, and 5.48, and sections 5.7.5.65, 5.7.6.4 and 5.7.6.7.**

**Volume 6, Annex 5.5: Offshore ornithology apportioning technical report (APP-095) Table A.1**

44. We disagree with the use of the term 'JNCC avoidance rates', or similar, to describe the Ozsanlav-Harris report. Although Ozsanlav-Harris et al. (2023) is a JNCC report, it does not in itself constitute our recommended avoidance rates. Referring to it as 'JNCC avoidance rates' incorrectly gives the message that JNCC advise use of every number in the report as it appears, which is not necessarily the case. Our advice on implementation of the results of Ozsanlav-Harris et al. (2023) is included in the joint SNCB guidance note on Collision Risk Modelling (CRM). This uses the rates from Ozsanlav-Harris et al. (2023), but species grouping is an important aspect of this. This information is contained within advice which Natural England provided on 7 July 2022 directly to the Applicant and is also used. Those rates should be regarded as and referred to as 'joint SNCB avoidance rates', whilst the Ozsanlav-Harris et al. (2023) should be named as Ozsanlav-Harris et al. (2023) rates. This has been iterated to Mona Offshore Wind during the Expert Working Group (EWG) several times, for example during the Ornithology EWG06 meeting held on 19 October 2023 (APP-042, section D.7.1, agenda item no. 5), and within JNCC comments provided on 23 November 2023 on the minutes of the Ornithology EWG06 meeting (APP-042, section D.7.1, agenda item no. 5).
45. The applicant's response to JNCC comments on the minutes of the Ornithology EWG06 meeting (APP-042, section D.7.1, agenda item no. 5) state "*Applicant response: Thank you – we have updated the reference throughout our documents*" yet clearly this is not the case (see tables and sections listed in heading).
46. Although this correction may seem semantic as there is neither a material impact on the assessment presented nor on the conclusions drawn, JNCC's view is that the text not only significantly misrepresents JNCC advice, but puts these misrepresentations into the public domain as the JNCC position. This could then be relied upon erroneously by future projects. We therefore strongly advise that the errors should be corrected by submitting full updated and revised versions of the affected chapters (see also paragraphs 6 to 8 above).

#### **Volume 2, Chapter 5: Offshore ornithology (APP-057) section 5.7.5**

47. We disagree with the use and presentation of only mean or central collision estimates throughout. The Confidence Intervals associated with collision estimates should also be provided and taken through the assessment to assess the full range of potential

effects. This comment also applies to the HRA Integrity Matrices document (APP-035), Section 1.2.5, and the HRA Stage 1 Screening Report document (APP-034). However, we don't consider that this makes a material difference to the outcomes of the impact assessment.

### **Assigning age-classes to individuals**

#### **Offshore ornithology apportioning technical report (APP-095) Table 1.4**

48. The last column in Table 1.4 should be titled "*Proportion of adult birds (%)*" not "*Proportion of immature birds (%)*".

#### **Offshore ornithology apportioning technical report (APP-095) section 1.3.3**

49. No information is provided on the number of adults and immatures identified from Digital Aerial Surveys (DAS, for example either within the Volume 6, Annex 5.5: Offshore ornithology apportioning technical report (APP-095) or Volume 6, Annex 5.1: Offshore Ornithology Baseline Characterisation Technical Report (APP-091). Without an understanding of the number of birds identified to age classes, as a proportion of the total number of birds (per species), it is hard to know whether a representative sample was identified, and whether this was appropriate to use when applying a ratio of adults and immatures to unidentified birds.

#### **Offshore ornithology apportioning technical report (APP-095) section 1.3.3**

50. We disagree with the calculation of black-legged kittiwake age classes. This approach was not raised by the applicant during EWG meetings or subsequently, and therefore JNCC has not agreed to this approach. The Hornsea Offshore Wind Farm Project Two approach to apportioning to age class referred to in section 1.3.3.5 relies on reliable counts of first year birds, i.e. in the case of black-legged kittiwake first summer birds which by August of that year have largely transitioned to adult plumage and therefore indistinguishable from adults. Therefore, the identification rate of first summer black-legged kittiwake is questionable and calculations derived from this, for example, applying survival rates to define an age class structure is also questionable. It is noticeable that more recent projects such as Hornsea Offshore Wind Farm Project Four and the East Anglia projects have not used this approach. Further, we advise that stable age structures are not derived using population viability analysis, and the method outlined in this report is effectively a manual version of this, which we do not recommend. We therefore disagree with the percentage of black-legged kittiwake adults and immatures in the breeding season in Volume 6, Annex 5.5: Offshore ornithology apportioning technical report (APP-095) Table 1.6.

#### **Offshore ornithology apportioning technical report (APP-095) section 1.3.3**

51. We disagree with the methods of apportioning impacts between adults and immatures during the non-breeding season (Volume 6, Annex 5.5: Offshore ornithology apportioning technical report (APP-095), paragraph 1.3.3.8). We advise that the same approach is taken as for the breeding season, as has been advised previously during EWG meetings and correspondence, by using the proportions of adults and immatures identified by surveys, and otherwise assuming all adult-type birds are adults. Without

this approach being agreed, we cannot agree the results of the EIA and HRA rule out there being an adverse effect beyond reasonable scientific doubt.

### **Apportioning individuals to SPAs**

#### **Offshore ornithology apportioning technical report (APP-095) section 1.3.5**

52. We require clarity regarding the method of apportioning impacts to SPAs during the non-breeding season. We advise that to calculate apportion impacts to colonies in the non-breeding season, this should be based on the proportion of the SPA adult birds, across the BDMPS total of birds of all ages, for each relevant non-breeding BDMPS season, as has been advised previously during EWG meetings and correspondence.

#### **Offshore ornithology apportioning technical report (APP-095) Table 1.7**

53. It is not clear whether sabbatical birds (individuals which do not breed in a particular year) have been removed from the assessment. There is suggestion that they haven't (Section 1.3.4.5), yet the heading of Table 1.7 suggests that sabbatical rates are considered within the HRA. JNCC advice is that sabbatical birds should not be removed (i.e. that all adult birds are considered to be breeding), and suggest that Table 1.7 is removed to aid clarity. Without this issue being clarified, we cannot agree the results of the EIA and HRA rule out there being an adverse effect beyond reasonable scientific doubt.

#### **Offshore ornithology apportioning technical report (APP-095) Table 1.17**

54. There are two black-legged kittiwake colonies, "*Offshore - Irish Sea*" and "*Morecambe Central Gas Platform*" which are very close to the Mona Array (20.56km and 33.15km, respectively) with very large adult counts (1234 and 1112, respectively). It is not clear what or where these colonies are (and hence whether these are two single or multiple colonies, and whether the given distances from the Mona Array are mean distances of two or more colonies), or where the data on counts has come from. We request clarification as to whether these are offshore colonies on oil and gas platforms, the origin of the data, and the confidence that can be placed on it (i.e. whether standard survey methodologies were used. Given that these colonies have some of the largest proportional SPA weight values, much of the impacts are apportioned to these colonies, with consequently reduced impacts apportioned to SPAs. Therefore, it is important to have reliable data to use in the apportioning value calculations. We strongly recommend that these clarifications are provided, to give confidence in the data and resultant conclusions for the HRA.

### **Reference populations**

#### **Volume 2, Chapter 5: Offshore ornithology (APP-057) sections 5.3.9.10 to 5.3.9.12**

55. We maintain our disagreement over the breeding season BDMPS reference population used for the alone assessment (Volume 2, Chapter 5: Offshore ornithology (APP-057)), as has previously been advised.
56. In the offshore ornithology EWG07 meeting (APP-042, section D.8.1, agenda item no. 2), we agreed to disagree on EIA breeding reference population "*RB - We will need to*

*“agree to disagree” on other species but for Northern gannet and Manx shearwater the lower number should be used”, the lower value meaning whichever is lower between the SNCB approach and the applicant’s proposed approach. Our agreement log (APP-042, section D.9, item 13) maintains our disagreement with the proposed approach.*

57. The Applicant states in Section 5.3.9.12 of Volume 2, Chapter 5: Offshore ornithology (APP-057) that *“During the seventh EWG meeting (held 8 December 2023) [APP-042, section D.8.1, item no. 2], it was agreed that for the project alone assessment, foraging range populations could be used, however if the foraging range population is greater than the regional seas populations (BDMPS from Furness, 2015) then impacts would also be assessed against this population.”* This doesn't accurately reflect the discussion or minutes of the offshore ornithology EWG07 meeting (APP-042, section D.8.1, agenda item no. 2). Our advised approach remains to consider breeding adult birds at colonies within the relevant BDMPS in which the project is located, plus the immatures associated with those colonies. Data should come from the tables in Appendix A of Furness (2015) for both breeding adults and immatures.

### **Population Viability Analysis**

#### **Volume 2, Chapter 5: Offshore ornithology (APP-057) sections 5.7.2.105 to 5.7.2.106**

58. We note the lack of PVA for common guillemot against the reference population relevant to the 1% baseline mortality trigger prompting the need for a PVA within the ES. It is acknowledged that during the breeding season the worst-case scenario of 70% displacement and 10% mortality, an increase in baseline mortality greater than 1% is predicted for common guillemot. However, it is then stated that for a more realistic 50% displacement and 5% mortality, the increase in baseline mortality would be 0.52% and therefore below the 1% threshold. This appears to suggest that the impacts from only the Applicant’s preferred displacement and mortality rate are used to calculate whether 1% baseline mortality is passed, and whether a PVA is required. We advise that the full range of displacement and mortality rates should be used to calculate if and where the impact crosses the 1% baseline mortality threshold for taking through to PVA. Whilst we would not base our advice solely on the worst-case likely scenario, it is important to look at the range of likely scenarios in order to determine whether there is a realistic possibility of impact that would need further consideration.
59. It is stated that PVAs have been carried out on two Sites of Special Scientific Interest (SSSI) breeding colonies. It is not clear why impacts have been assessed against those colony populations, when the reference population against which the predicted displacement mortalities were assessed was the foraging range breeding BDMPS population. We would expect to see a PVA carried out for the breeding season alone impact mortalities against the breeding season reference population. However, we don't consider that this makes a material difference to the outcomes of the impact assessment.

#### **Volume 2, Chapter 5: Offshore ornithology (APP-057) section 5.7.5.13**



60. We note the lack of PVA for breeding season collision impacts to great black-backed gull. Predicted collisions are above 1% baseline mortality during the breeding season, yet a PVA has not been carried out. Therefore, we would expect to see a PVA carried out for the breeding season alone impact mortalities against the breeding season reference population. However, we don't consider that this makes a material difference to the outcomes of the impact assessment.

**Volume 6, Annex 5.6: Offshore ornithology population viability analysis technical report (APP-096) Table 1.4**

61. The BDMPS and baseline mortality values for great black-backed gull appear to be associated with the wrong seasons. For the annual assessment the BDMPS should be 44,753 with a baseline mortality of 4,252. For the non-breeding season, the BDMPS population should be 17,742 with a baseline mortality of 1,685. The PVA logs in Appendix A2.1 and A2.2 appear to have associated the correct reference populations per season, therefore the PVA itself appears to have used the correct values, but the values in Table 1.4 are incorrect. Hence, we don't consider that this makes a material difference to the outcomes of the impact assessment.

**Volume 6, Annex 5.6: Offshore ornithology population viability analysis technical report (APP-096) Table 1.12 and 1.13**

62. The extremely high predicted growth rates associated with great black-backed gull are at odds with the general trend in Global and European (where non-breeding great black-backed gull in UK waters are likely to originate) and UK breeding populations being that of decline (albeit with range expansion). For example, Burnell et al. (2023) highlights the overall declines in breeding great black-backed gull in Britain and the UK since the previous national census (Seabird 2000) of -55% and -52%, respectively. England has suffered a smaller decline (-3%), with the breeding population of the Isles of Scilly increasing slightly (14%). Given the overall picture of decline, we question whether increases in population of ~12,000% predicted by the PVA would ever be realised in reality, and hence the reliability of the PVA predictions. We strongly recommend a sense check of the PVA input and outputs before having reliance on the outputs. An obviously unrealistic outcome of the PVA does not provide confidence that the results can be relied upon, therefore we cannot agree the results of the EIA and HRA rule out there being an adverse effect beyond reasonable scientific doubt.

**Cumulative and in-combination assessments**

**Volume 2, Chapter 5: Offshore ornithology (APP-057) section 5.9**

63. We maintain our disagreement over the approach to cumulative (EIA) and in-combination assessments (HRA), and specifically the inclusion of projects with unquantified levels of impact (either because modelling techniques have changed, or their impacts were not quantitatively assessed), and this disagreement has been raised in Preliminary Environmental Information Report (PEIR) responses (APP-040, D.25.11, Unique Reference Identifier Mon\_060\_101\_010623). In October 2023, the SNCBs supplied bespoke advice to the Mona, Morgan generation and Morecambe generation projects (Proposed methodology for 'gap-filling' the Irish Sea R4 cumulative & in-combination assessments, circulated by Natural England (APP-042, section D.6.13)),



providing a suggested approach to filling in gaps in data on impacts from relevant projects for cumulative/in-combination assessment. The Applicant has not followed this approach and has presented a qualitative approach for the projects with no data. We do not consider that the qualitative assessments presented by the Applicant are sufficient and do not consider that robust conclusions can be drawn to rule out there being an adverse effect without reasonable scientific doubt, regarding the accumulating scale of impact to some species. We therefore reiterate that our advice for a pragmatic method to address the lack of impact assessments for a number of historical Offshore Wind Farms (OWFs) in the region remains as detailed in the original SNCB advice.

**Volume 2, Chapter 5: Offshore ornithology (APP-057) sections 5.9.2, 5.9.3, and 5.9.4**

64. In the cumulative assessment, the abundance estimates at Erebus offshore wind farm are incorrect for several species. This was also the case in the Section 42 PEIR (Mona Offshore Wind Ltd. (2023), Volume 2: Chapter 10 Offshore ornithology, table 10.49, table 10.53, and table 10.59), and JNCC responded to these errors in our Section 42 PEIR response (APP-040, D.25.11, Unique Reference Identifier Mon\_060\_100\_010623). However, the same errors remain. The abundance estimates to use should be those within Table 5-1 for common guillemot and Table 5-3 for Atlantic puffin in Blue Gem Wind (2022). The abundance estimates for Northern gannet should be those within Table 23 of HiDef (2021). The abundance estimates for black-legged kittiwake should be those within Table 18 to 20 of HiDef (2021). Without these errors and other errors being fixed, we cannot agree the results of the EIA and HRA rule out there being an adverse effect beyond reasonable scientific doubt.

**Volume 2, Chapter 5: Offshore ornithology (APP-057) sections 5.9.3 and 5.9.4**

65. In the cumulative assessment, the collision estimates for Northern gannet at Erebus are incorrect in Table 5.128. The collision estimates to use should be those within Table 5-31 of Blue Gem Wind (2022). Without this and other errors being fixed, we cannot agree the results of the EIA and HRA rule out there being an adverse effect beyond reasonable scientific doubt.

**Volume 2, Chapter 5: Offshore ornithology (APP-057) sections 5.9.2, 5.9.3, and 5.9.4**

66. Impacts in the cumulative tables often do not add up to the totals at the foot of the tables, and have multiple other errors in them, such as figures apparently attributed to the wrong wind farms, seasonal impacts not adding up to annual impacts. Without this error and other errors being fixed, we cannot agree the results of the EIA and HRA rule out there being an adverse effect beyond reasonable scientific doubt.

**Volume 2, Chapter 5: Offshore ornithology (APP-057) section 5.9.3**

67. For the ES cumulative assessment, it appears that collision estimates from other offshore wind farm projects have been adjusted to account for different avoidance rates. However, it is not stated that this has been done, nor how this has been done. Therefore, we cannot replicate the findings, or determine whether the method or results are correct. Without this being clarified, we cannot agree the results of the EIA and HRA rule out there being an adverse effect beyond reasonable scientific doubt.

**Part Three: Special Protection Areas and Ramsar sites Assessments (APP-033)  
section 1.4.6.3**

68. The threshold of using 0.05% baseline mortality from the project alone to screen whether impacts should be considered in-combination was not raised by the applicant during EWG meetings or subsequently, and therefore JNCC has not agreed to this approach. We recommend that the Applicant be clear on what this percent increase in baseline mortality would be in absolute mortality terms. We are not aware that similar thresholds have been applied in other cases to screen projects in or out from in-combination assessment. We request that the Applicant provide justification for the appropriateness of this approach.

**SPA features**

**HRA Stage 1 Screening Report (APP-034) Table 1.68**

69. Throughout the HRA, the qualifying features of Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA appear to be incorrect. We recommend the features and assemblages are carefully checked against the SPA designation information (JNCC, 2019), and the details within the HRA updated. We have advised on errors in the description of features of Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA during the Section 42 PEIR response (APP-040, D.25.11, Unique Reference Identifiers Mon\_060\_089\_010623, Mon\_060\_116\_010623, Mon\_060\_117\_010623, Mon\_060\_118\_010623, and Mon\_060\_124\_010623), yet the errors remain.

**Part Three: Special Protection Areas and Ramsar sites Assessments (APP-033)  
section 1.6.3.44**

70. We disagree with the interpretation that birds on migration are not specifically part of the Liverpool Bay/Bae Lerpwl SPA citation and therefore are not considered part of the non-breeding season assemblage. The SPA citation refers to non-breeding birds. There are no breeding red-throated divers in England or Wales, and therefore any birds present within the SPA will be non-breeding birds (even when present during the defined breeding season cited). We therefore do not agree that they can be discounted as not part of the protected population. We note that as per the SPA Conservation Advice (Natural England (NE), Natural Resources Wales (NRW) and the Joint Nature Conservation Committee (JNCC), 2022), April and September represent months where smaller numbers of this species can be expected, and significant Impact and Adverse Effect on Integrity (AEOI) is less likely than in 'core' months of the non-breeding period. We do not consider therefore that red-throated diver will occur in sufficient numbers and densities during the summer months (April to September) for there to be an impact of consequence for the Conservation Objectives of the site.

**HRA**

**HRA Stage 1 Screening Report (APP-034)**

71. There are multiple discrepancies between the main text of the HRA Stage 1 Screening Report and the appendix tables of the same document. All values (text and tables)

must be double-checked and updated where necessary. The HRA Stage 1 Screening Report provides very little information to cross reference which values from other documents have been used, and through what calculation, in order to generate results. Therefore, it is nearly impossible to follow what values have or have not been used. We strongly recommend that the HRA Stage 1 Screening Report contains a clear audit trail of what values and parameters have been used, where they have been used, and how they have been applied. Without this, we cannot confidently replicate the results, and hence we cannot agree the results of the EIA and HRA rule out there being an adverse effect beyond reasonable scientific doubt.

#### **HRA Stage 1 Screening Report (APP-034) section 1.4.6.30**

72. While we have accepted the Applicant's general approach to Likely Significant Effect screening (i.e. carrying out a displacement and collision risk assessment at the LSE stage and apportioning impacts to SPAs) and Appropriate Assessment (i.e. assessing anything more than 0.0 mortalities) in this case, JNCC has consistently advised the Applicant throughout the pre-application process that the LSE test is a course filter, and an LSE should be considered to exist where there are instances of qualifying features with potential protected site connectivity and an impact pathway (see advice given during pre-application meetings (APP-042, D.4.4), our response to the Section 42 PEIR (APP-040, Table D.25.11), and as summarised in Table 1.2 of the HRA Stage 1 Screening report (APP-034).
73. In our view, the screening presented in this application has gone beyond an assessment of whether an impact pathway has the potential to compromise the ability of the site to meet its conservation objectives, and has additionally examined the magnitude of impact, as apportioned to each relevant MPA, and whether this would represent an LSE. In this case, no relevant site features have been screened out of Appropriate Assessment that should not have been.
74. However, the principles established in statute and case law (i.e. whereby those constituent elements of the plan or project which are (a) not directly connected with or necessary to the management of the European Site(s) features and (b) could conceivably adversely affect a European site, would have a likely significant effect, either alone or in combination with other plans and projects, upon the European sites and which could undermine the achievement of those conservation objectives) ensure the consistent and systematic examination of the potential of a plan or project to cause harm to an MPA and the magnitude to which it may do so. We are of the view that the approach taken by the Applicant may not be appropriate for projects where the magnitude of impact may be expected to be larger (for example where greater densities of birds would be expected and/or larger scale projects, resulting in potentially greater absolute mortality predictions) and risks site features being excluded from further assessment inappropriately.

#### **HRA Stage 1 Screening Report (APP-034) section 1.4.6.49**

75. As far as we are able to calculate, we generate different values of apportioned adult impacts for at least great black-backed gull and black-legged kittiwake compared to those in the HRA Stage 1 Screening Report (APP-034) appendix Tables A6, A7, and

A12, for example. Due to the unclear method and values used (e.g. our comments in paragraphs 25, 26 to 33, 49 to 51, 52, and 53), it is not known whether there are errors in the calculation, or a different method has been applied, or different values are being used, to those we assume are used. We recommend a thorough check of the values and calculations used to generate the results in the HRA Stage 1 Screening Report, and that the values and method of apportioning impacts are fully presented. Without these, we cannot confidently replicate the results, and hence we cannot have confidence in the results and hence we cannot agree the results of the EIA and HRA rule out there being an adverse effect beyond reasonable scientific doubt.

### **Part Three: Special Protection Areas and Ramsar sites Assessments (APP-033)**

76. We disagree with several elements of the assessment to offshore ornithology within the HRA. In addition, there are multiple errors within the tables and text, and errors when using values in subsequent stages of the assessment. Many aspects of the assessment are difficult to follow what has been done or where values have come from. Due to these disagreements, errors, and lack of clarity, we do not have confidence in the results, nor are we able to agree with the overall conclusions of the HRA, particularly with regards to Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA, in either the HRA Stage 1 Screening Report (APP-034) Table 1.68 and paragraph 1.4.6.49 or Part Three: Special Protection Areas and Ramsar sites Assessments (APP-033) Table 1.18 and paragraphs 1.5.3.34 to 1.5.3.37.

### **Part Three: Special Protection Areas and Ramsar sites Assessments (APP-033) section 1.6.3.44**

77. Note that predicted works (cable repair and reburial) would not need to occur concurrently in order to have the predicted impacts (just within the same non-breeding season). However, we welcome that the assessment is based on the total predicted habitat loss, irrespective of when it may occur. We don't consider that this makes a material difference to the outcomes of the impact assessment.

### **Ornithology Conclusion**

78. We disagree with several elements of the assessment to offshore ornithology within the ES and the HRA. In addition, there are multiple errors within the tables and text, and errors when using values in subsequent stages of the assessment. Many aspects of the assessment are difficult to follow in terms of what has been done or where values have come from. Due to these disagreements, errors, and lack of clarity, we do not have confidence in the results, nor are we able to agree with the overall conclusions, either within the EIA or the HRA, particularly with regards to Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro Special Protected Area (SPA).
79. The Applicant has undertaken to produce an Errata document to highlight where errors in the assessment have been made and what the values should have been, which JNCC welcomes. However, we also advise that it is for the Applicant to provide the necessary information for an HRA to be conducted, and that it needs to be

demonstrated beyond reasonable scientific doubt that there would not be an Adverse Effect on the Integrity of a UK MPA network site. Similarly, it is for the Applicant to provide the necessary information for a judgement of the significance of effect at an EIA scale. As the application currently stands, we do not consider that there is sufficient confidence in the results of the assessments that would support a sound decision of no Adverse Effect on Integrity/no Significant Environmental Effects. Further, we are concerned that only providing an Errata document would not provide confidence that errors did not, in fact, make a material difference to the results of the assessment, and that affected modelling/assessment should be re-run and the results provided in revised application documentation (ES, HRA and associated documents).

80. We have referred to Applicant's responses ([PDA-008](#)) to our Relevant Representations where we consider it helps to illustrate JNCC's position on the issues highlighted, but at the time of submission of these Written Representations have not had the opportunity to fully consider and respond to those comments. We shall provide any detailed comments we have at Deadline 2.

## Marine mammal comments

81. The following Written Representations (WR) expands on our Relevant Representations (RRs) regarding marine mammals and where appropriate, advice we provided on the Preliminary Environmental Impact Report (PEIR; [APP-040](#)).
82. In line with JNCC's offshore remit, we defer to NRW-A and NE where appropriate regarding impacts and SACs in territorial waters e.g. for seals and bottlenose dolphins.
83. Our RRs provided a list of documents we reviewed regarding marine mammals. According to the Examination Library (EN01037), only one of these has been updated since we submitted our RRs to the examining authority (highlighted below). Our WRs reference the following documents:

### Environmental Statement:

- Chapter 4: Marine mammals ([APP-056](#))
- Volume 5, Annex 3.1: Underwater sound technical report ([APP-079](#))
- E1.2 Part Two: Special Areas of Conservation (SACs) Assessments ([APP-032](#))
- F5.5.1 Cumulative effects screening matrix ([APP-084](#))

### Offshore plans:

- Outline Vessel Traffic Management Plan ([APP-200](#))
- Outline underwater sound management strategy ([APP-202](#))
- Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels ([APP-203](#))
- Outline marine mammal mitigation protocol ([APP-207](#))

#### Other documents

- Draft DCO (AS-011, previously PDA-003)
- Applicants' response to relevant representations (PDA-008)
- Consultation Report Appendices – Part 3 (APP-040)
- Transcript of Issue Specific Hearing 2 (ISH2) - Part 3 - 17 July 2024 (EV3-004a)
- Action Points arising from Issue Specific Hearing 2 (ISH2) (Onshore and Offshore Environmental Matters and dDCO) – English - 17 & 18 July 2024 (EV3-006a)

#### Overall comments

84. We disagree with a number of approaches being taken by the Applicant within the Environmental Statement and the HRA. The main point, being unexploded ordnance (UXO) clearance which is a topic that we have raised previously. We have stated previously that we do not agree with UXO clearance being included within the Development Consent Order (DCO) and draft Marine Licence (dML), and here we provide our detailed reasons for this position.
85. Within our Written Representations, we have provided comments on the following areas of concern:
1. The inclusion of unexploded ordnance (UXO) clearance within the assessment (Paragraphs 88-94)
  2. The use of 'scare charges' (Paragraph 95)
  3. Due consideration of noise abatement (Paragraphs 103-111)
  4. Marine mammal collision risk (Paragraphs 118-123)
  5. Conclusions regarding the North Anglesey Marine SAC (Paragraphs 124-126)
86. We also provide comment on missing links and references within documents.

#### Comments on specific elements

##### Unexploded ordnance clearance

87. Throughout the pre-application consultation JNCC have repeatedly advised against including unexploded ordnance (UXO) clearance in the DCO and dML, in particular the option for high order clearance. We agree to including a high-level assessment of potential impacts from this activity in the Environmental Statement (ES), as this provides a holistic view of all potential impacts, however it also highlights how little is known at this stage about the requirements for UXO clearance.
88. All construction sites are required to be certified safe from UXOs before construction can commence. Time limitations on ALARP (as low as reasonably practicable) certificates mean magnetometer surveys to identify potential UXOs, and subsequent investigative surveys to confirm which of these are UXO and whether they need clearance via detonation, must be undertaken in the months immediately prior to construction commencing.



89. Historically clearance has been undertaken using a method referred to as high order clearance, where a donor charge (which can contain explosive material ranging between 1-20kg in net equivalent quantity (NEQ)) is detonated next to the UXO, causing both the donor and the UXO to explode. More recently, low noise alternatives have become commercially available and a Government Joint Position Statement<sup>1</sup> (Annex MM1) requires these methods to be the primary method of clearance in commercial clearance campaigns. This statement has been signed by UK and Devolved Governments, marine regulators and SNCBs. This includes NRW (licensing and advisory) and JNCC.
90. JNCC strongly advise against including UXO clearance in the DCO/dML for the following reasons:
- a) It is not known until the site investigative surveys what type/size of UXO require clearing or options available for clearing them. The only information available prior to this is based on historical records and data from nearby projects, if available. This desk-based data is used to estimate the number and type of UXO which may require clearance, however the nature of the data means it may not always be accurate or complete. In addition, natural movement of the seabed can move UXOs to different locations making what records may be available incorrect. This lack of accurate information can have implications for licensing. For example, a wind farm project in Scotland recently had to apply for three marine licenses: the first with a number to be cleared and range of UXO types based on the desk study; the second to increase this number to more than double that originally requested as more than expected were confirmed; and a third to clear a device which was not expected as it was not identified as a risk in the desk study. This demonstrates how the scenario presented in the Mona ES may not be realistic and could underestimate the risks to marine mammals.
  - b) Paragraph 4.9.4.5 (page 146) of [APP-056](#), estimates that up to 22 devices will need to be cleared from within the array area and cable corridor. To support the impact assessment, it is assumed the commonest type of UXO will contain 130kg NEQ of explosive material however it could range between 25kg and 907kg. Until the investigative surveys are completed it is unknown whether this estimate is realistic. Without more accurate information, JNCC must assume the worst-case scenario, i.e. 22 x 907kg devices when providing advice and this could result in over-precautionary mitigation requirements which should be secured in the DCO. Alternatively, if this estimate is under-precautionary (i.e. investigation surveys identify more devices than predicted by the ES),

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<sup>1</sup> [Marine environment: unexploded ordnance clearance joint interim position statement - GOV.UK \(www.gov.uk\)](#)

conclusions within the ES become invalid and this will have implications for HRA (see paragraph 91e).

We note it is not stated within this paragraph on what these estimates are based, however for the purpose of our advice we have assumed a desk-based study was undertaken as it is routine practice.

- c) It is not known at this stage what method of low noise clearance will be used or whether any devices identified will require high order clearance. The method of low noise clearance currently supported by evidence is referred to as low order deflagration. This still requires a donor charge containing explosives, but the volume is much smaller e.g. the first commercial campaign to successfully use a low order deflagration used 150-250g (Annex M<sup>2</sup>). The applicant has assumed a low order donor charge of 80g when predicting injury to marine mammals from this method in the impact assessment (Table 1.27, page 54 in [APP-079](#), and referred to in paragraph 4.9.4.5, page 146 of [APP-056](#)). It is not known at this stage who will undertake the work and what clearance tools they will have access to. Should a contractor use a low noise tool that uses a larger volume of explosive material, e.g. 150-250g, the injury ranges provided in the ES are not valid. Not only will a new assessment be required, but this has implications for the outline marine mammal mitigation plan ([APP-207](#)) as predicted injury ranges could be larger than provided in the ES.
- d) Paragraph 4.9.4.3 of [APP-056](#) refers to Robinson et al 2020<sup>3</sup> as evidence that low order deflagration results in lower sound levels than equivalent high order clearance. While this is appropriate evidence, the results are specific to a particular tool, and it is unknown at this stage whether similar tools developed by other companies will provide the same level of noise reduction. In addition, no evidence is provided to support claims of reduced noise levels by the low-yield method referred to in this same paragraph, or information as to what this method is or how this method defers from deflagration. For example, the Table 4.31 allows for multiple low yield charges. It is not clear why these additional charges are needed or if they will be deployed at the same time. Without knowing what low-noise method will be used and the levels of sound reduction (compared to high order clearance) that can be expected, it is not possible to be confident that the outline marine mammal mitigation plan ([APP-207](#)) will be sufficient to reduce the risk of injury to marine mammals.
- We also note no reference is provided regarding the potential to have to undertake multiple attempts when clearing individual devices (for any of the clearance methods) e.g. if the first attempt fails or it does not clear all the

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<sup>2</sup> [OW-U XO-BusinessCase.pdf \(oceanwinds.com\)](#)

<sup>3</sup> Robinson, S.R., Wang, L., Cheong, A-H., Lepper, P.A., Marubini, F., & Hartley, J.P. 2020. Underwater acoustic characterisation of unexploded ordnance using deflagration. *Marine Pollution Bulletin*, 160: 111646. <https://doi.org/10.1016/j.marpolbul.2020.111646>.

explosive material. In the past, it has been common practice for clearance companies to be allowed up to three attempts of high order clearance on a single device. The campaign detailed in Annex MM2 used multiple deflagration charges on some of the larger devices to ensure all explosive material was burned and none required recovery and disposal onshore. While this does not change the predicted injury ranges in the ES or subsequent mitigation requirements, it could extend the number of days on which detonations occur, prolonging the risk of injury and disturbance. This could have implications for HRA (see paragraph 91e) and protections afforded to European Protected Species (paragraphs 97-99).

- e) Assuming a worst-case scenario that all devices would be cleared using high order could have implications for HRA. The project array area is 23.67km from the North Anglesey Marine SAC, designated for harbour porpoise (Table 4.11, page 50 of [APP-056](#)). One of the conservation objectives for this site is no significant disturbance of the species. A noise management approach is implemented for this site to reduce the risk of disturbance to harbour porpoise (Annex MM3<sup>4</sup> and MM4<sup>5</sup>), which requires daily and seasonal thresholds not to be breached. When assessing compliance with these thresholds, JNCC advocate the use of Effective Deterrent Ranges (EDRs). These are fixed disturbance ranges for different activities based on empirical evidence oppose to distances predicted from noise modelling (detailed in MM3). The current EDR for high order UXO clearance is 26km, meaning disturbance from high order clearance in the array area could impact this harbour porpoise site. The daily threshold considers the spatial area from which harbour porpoise are excluded because of the noisy event, and the seasonal threshold the number of days on which the disturbance will occur. While the area of overlap should be small (see paragraph 125 of this advice), clarity is required on whether additional attempts to clear individual devices will increase the number of days on which clearance could occur, or if required, can additional attempts be completed within the same day. Both need to be considered in-combination with other noisy activities occurring within the site at the same time.

91. In conclusion, we advise there is a risk of injury or death to marine mammals from UXO clearance. There is currently insufficient information available to be able to robustly assess the scale of this risk or its impacts to marine mammals or confirm appropriate mitigation measures to reduce the risk of injury. We strongly advise against UXO clearance being included as a licensed activity in the DCO and dML, and request that a

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<sup>4</sup>JNCC (2020). Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (England, Wales & Northern Ireland). JNCC Report No. 654, JNCC, Peterborough, ISSN 0963-8091.

<sup>5</sup> <https://naturalresources.wales/media/696755/ps017-nrws-position-on-assessing-behavioural-disturbance-of-harbour-porpoise-phocoena-phocoena-from-underwater-noise-30.pdf>

separate marine license is applied for post-consent, once more accurate information is available.

92. If high order clearance was removed from the potential clearance methods, we would reconsider this position. However, we would expect to see this clearly stated in the DCO e.g. a commitment not to undertake high order clearance and to apply for a separate ML if it was deemed necessary.
93. If UXO clearance were to remain in the DCO, we provide the following advice regarding Section 21 of the draft DCO (AS-011), which relates to UXO clearance:
- f) Sub-section (1) states no removal will take place until a method statement has been approved by NRW and the relevant SNCBs, and that this document will be submitted to NRW at least three months prior to the date on which clearance activities are intended to begin. The wording suggests a single document will be submitted which includes methodologies for identification and clearance of potential UXO targets as well as clearance methods. This suggests the document will be submitted prior to the investigation surveys being undertaken, meaning no more information will be available than is currently presented in the ES. As the statutory advisor for offshore waters, if high order clearance is permitted in the DCO and is included as a potential option in this method statement, JNCC will have to base their advice when reviewing this document on the worst-case scenario, that is all devices will be cleared using high order clearance. The predicted injury range for harbour porpoise from such a clearance is more than 15km (APP-056, Paragraph 1.8.2.2) - this cannot be mitigated.
  - g) The ES (Paragraph 4.9.4.5 (page 146), APP-056) has assumed a maximum of 22 devices will be cleared and the same number is used to define the maximum design scenario in the outline marine mammal mitigation plan (APP-207). However, no maximum number is provided within the draft DCO. A maximum number of devices to be cleared should be stated in the DCO, and this should match that used in the ES when assessing potential impacts i.e. 22. If more than this number is found once the investigative surveys have been completed, a variation or separate marine licence should be required.
  - h) The applicant has committed to following a mitigation hierarchy when clearing UXOs within the EA and marine mammal mitigation plan, there is no reference to this in the DCO. There is no commitment within the DCO to prioritise low noise methods of clearance, as required by the Government Position Statement on UXOs. We recommend that only low noise methods of clearance are allowed and a commitment in the DCO that if high order clearance is required, it will be requested via a separate marine licence application.

94. Section (1b) of the draft DCO states a marine mammal mitigation protocol will also be submitted to NRW, in accordance with the outline marine mammal mitigation protocol ([APP-207](#)). We expand on our comments on the outline plan in our RR below, and where relevant, how it interacts with the DCO:
- i) Section 1.4.3 UXO clearance maximum design scenario (MDS): The MDS defined in Table 1.7 states that high order donor charges will be either 1.2kg or 3.5kg of explosive material (assumed to be NEQ although not stated), a low order clearance charge will use 80g and low yield clearance 750g. This reflects the metrics used in the impact assessment. While this outline plan would be updated prior to clearance activities commencing, it is currently not known what clearance methods will be used therefore these metrics could change. Should they differ, the conclusions within the ES and this mitigation plan may become invalid. JNCC are not assured these metrics represent the maximum that could be used; therefore, we are unable to advise the mitigation measures included in the plan for UXO clearance will reduce the risk of injury. Should UXO clearance remain in the DCO, we recommend Section (1b) clarifies what the MDS is or confirms that it remains as defined in the outline document submitted during examination.
  - j) Section 1.6.1: The mitigation zone should be defined as the area within which injury could occur, as defined in the impact assessment. Depending on the radius of this zone, it may be possible to visually search the entire area however for many UXO clearances, the area within which injury could occur (and subsequently the mitigation zone) will be larger than can be visually searched. In such cases the area within the mitigation zone which will be visually searched should be identified i.e. a 1km radius around the device. In line with JNCC mitigation guidelines (MM5<sup>6</sup>), the minimum the mitigation zone should be is 1km, regardless of the predicted injury range.
  - k) Section 1.6.3 Passive Acoustic Monitoring (PAM) operators: We highlight that PAM operators should also have undertaken a JNCC approved training course in addition to MMOs, as the purpose of these courses is to understand how to implement the JNCC mitigation guidelines and record the effort.
  - l) Section 1.8. UXO clearance:  
We note that noise abatement for UXOs will be considered for devices larger than 130kg (Figure 1.3 and paragraph 1.8.2.3, [APP-207](#)). We agree the need for NAS can be considered once more information on clearance requirements is available however, we question why it will only be considered for devices larger than 130kg. The harbour porpoise injury range for a 130kg high order clearance is predicted to be just over 8km; this distance cannot currently be

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<sup>6</sup> [JNCC guidelines for minimising the risk of injury to marine mammals from using explosives](#)



mitigated. We also note the Marine Management Organisation routinely includes a consent condition in marine licenses for UXO clearance requiring noise abatement for all UXOs containing more than 50kg of explosive material (NEQ). Justification of this approach will be required.

Section 1.8.4 discusses how PAM will be the only way of performing a pre-detonation search during periods of limited visibility including nighttime (paragraph 1.8.4.2). This implies that UXO detonation will occur 24-hours a day. JNCC do not recommend that UXO clearance is undertaken in periods when a visual search cannot be undertaken, including at night.

A soft start procedure in the form of 'scare charges' is included in the protocol for high order clearance (Figure 1.3 and Section 1.8.6, [APP-207](#)). JNCC do not advocate the use of these charges as a soft start for UXO as their scaring effect is not proven (Lewis 1996<sup>7</sup>, Keevin and Hempen 1997<sup>8</sup>), and would result in unnecessary additional noise being emitted into the environment. We note the applicant's response to our relevant Response on this (RR-033.57 and RR-033.65, [PDA-008](#)); we agree this element of the mitigation plan could be discussed further when the mitigation plan is finalised as it involves taking something out rather than putting something in, however, we do not anticipate our stance changing on this. This advice should also be considered when justifying why noise abatement is only proposed for devices greater than 130kg in weight.

JNCC currently advise that a visual search is undertaken prior to activating ADDs and visual searches should be adapted to accommodate this. Modelling undertaken for McGarry et al 2022<sup>9</sup> (Annex MM6) suggests injury could occur if animals are within 100m of an ADD when it is switched on. To reduce this risk, observers should ensure no animals are nearby before switching devices on.

- m) Generally, this outline document is not practical for use in the field. We question why so much detail is required on the outputs of the ES assessment, and if it is to remain in the final document, recommend it is done so as an annex. This would enable to mitigation personnel to more effectively find the information they need to perform the mitigation.

Other comments:

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<sup>7</sup> Lewis, J.A. 1996. Effects of underwater explosions on life in the sea. 38 pp. Melbourne, Victoria: Dept. of Defence, Defence Science and Technology Organisation

<sup>8</sup> Keevin, T.M., & Hempen, G.L. 1997. The environmental effects of underwater explosions with methods to mitigate impacts. 99 pp. St. Louis, MO: U.S. Army Corps of Engineers.

<sup>9</sup> McGarry, T., De Silva, R., Canning, S., Mendes, S., Prior, A., Stephenson, S. & Wilson, J. 2022. Evidence base for application of Acoustic Deterrent Devices (ADDs) as marine mammal mitigation (Version 4). JNCC Report No. 615. JNCC, Peterborough. ISSN 0963- 8091.

95. The ES ([APP-056](#)) claims the UXO most likely to be found will contain 130kg explosive (paragraph 1.8.2.2). The impact assessment (Table 1.15) predicts injury to harbour porpoise for such a device could occur out to 8km using high order clearance. This is greater than can be currently mitigated for injury therefore a European Protected Species License for injury will likely be required. This application process requires three tests to be passed:
- Whether the activity fits one of the purposes specified in the Regulations.
  - Whether there are no satisfactory alternatives to the activity proposed (that would not incur the risk of offence); and
  - That licensing the activity will not result in a negative impact on the species'/population's Favourable Conservation Status (FCS).
96. We do not believe sufficient information is provided in the ES to robustly pass these tests.
97. Regarding disturbance to EPS, this will depend on the duration over which the clearance will occur. SNCB guidance<sup>10</sup> (see Annex MM7) considers noisy activities lasting more than four to six weeks as causing an offence. If it is assumed clearance will take 22 days (one device per day), this campaign would take four weeks. Clarification would be needed on whether contingency attempts to clear individual devices would extend this duration, or if all devices can be cleared in a single day even with additional attempts. This will help determine whether a licence should also include disturbance.
98. Updates to the government Joint Position Statement on UXO clearance and release of a Defra noise policy paper referred to in our RRs have been delayed due to the recent election and change of government. Minutes from the workshop at which the noise policy was discussed can be found in Annex MM8.
99. Paragraph 4.9.4.8 (page 146) of [APP-056](#) advises caution when interpreting large injury ranges such as those predicted for high order clearance. This is because the sound is unlikely to maintain its impulsive character as it travels away from the point of detonation. The references provided to support this hypothesis (Hastie et al 2019) refers to seismic airguns and pile-driving, both of which involve repeated pulses of noise resulting in prolonged sound duration over, usually, several hours. This is not, however, the case for UXO clearance which involves a single pulse of noise. We request evidence is provided to confirm this theory can be applied to UXO clearance in the same manner as for piling and seismic surveys.

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<sup>10</sup>[https://assets.publishing.service.gov.uk/media/5dea1d35e5274a06dee23a34/Draft\\_Guidance\\_on\\_the\\_Protection\\_of\\_Marine\\_European\\_Protected\\_Species\\_from\\_Injury\\_and\\_Disturbance.pdf](https://assets.publishing.service.gov.uk/media/5dea1d35e5274a06dee23a34/Draft_Guidance_on_the_Protection_of_Marine_European_Protected_Species_from_Injury_and_Disturbance.pdf)

100. Underwater sound technical report ([APP-079](#)), Table 1.29, potential impact ranges for high order clearance of UXOs: these results have assumed three weights of UXO however it is not clear whether this includes the donor charge or is just the weight of the UXO itself. If the latter the injury ranges could potentially be larger.

### **Construction piling**

101. Section 4.9.3 of the ES ([APP-056](#)) considers injury and disturbance from piling noise.
102. When commenting on the PEIR ([APP-040](#)), JNCC requested the inclusion of noise abatement technologies in the outline marine mammal mitigation plan due to the large injury ranges predicted for minke whale when using the cumulative SEL metric (7.4km, Table 4.26 respectively ([APP-056](#))). This was added to the current submissions ([APP-207](#)) and is referred to in the impact assessment, however, we believe it has not been given sufficient consideration.
103. Table 1.2 of the outline MMMP ([APP-207](#)) describes the measures to be adopted as part of this project; the use of noise abatement is included under the heading of Tertiary measures. This table describes noise abatement as something that will be considered in the Underwater Sound Management Strategy ([APP-202](#)), 'if it is required as an option'.
104. The Marine Management Organisation held a noise abatement workshop in March 2024, which in part aimed to forewarn industry that from 2025, they should expect to see changes in how noise from piling is managed in English waters. This was due to the expected increase in noise levels in coming years and the increasing need for developers to demonstrate they have used best endeavours to deliver noise reductions on their developments.
105. Minutes from this workshop are provided in MM8. It was considered industry-wide adoption of noise reduction systems during piling will be the only way developments can continue to be authorised. Reference was made to a verbal announcement in January 2024 that the MMO would require all projects piling in 2025 to use noise abatement, and they will be expecting a thorough review of potential noise abatement options and its potential use for piling activities (MM8). This includes an expectation that industry will provide thorough justification why noise abatement can't be used, should that be the case.
106. JNCC support this approach and agree the use of noise abatement will be crucial in managing underwater noise levels from piling in the future. While this development is not in English waters, the Mona wind farm array area borders English waters and noise from piling will travel across this border. We feel it is not unrealistic to expect all developers to demonstrate how they will avoid or reduce noise levels in their applications, regardless of project location. The Mona outline mitigation plan ([APP-207](#)) repeatedly refers to a mitigation hierarchy of avoid, reduce, mitigate, however this document (nor the ES) does not commit to any measures which will avoid or reduce

noise levels produced during piling. Instead, it focusses on the mitigation option and reducing the risk of injury. The outline Underwater Sound Management Strategy (APP-202) does describe noise abatement as a potential secondary measure and briefly describes options currently available however, there is no commitment to use it.

107. We are also aware of another three wind farm projects being progressed in the Liverpool Bay area: Morecombe (8.9km from Mona array area), Morgan (11km) and Morven (357km). The construction of all these projects is expected to overlap with construction at Mona (Section 1.8, [APP-084](#)). Managing the cumulative noise from so many projects within a relatively small area will be extremely difficult, particularly if noise abatement is not committed to in the marine mammal mitigation plans of each project. These other projects are in English waters so given the MMO announcement, we can anticipate them using noise abatement, but we do not foresee this as justification for Mona not to.
108. At this same workshop, Defra announced they would be publishing a noise policy paper. This was anticipated to be published end Q2 2024, however this has been delayed due to the recent change in government. The policy was described as providing Defra's priorities for underwater noise across the UK in coming years, including an expectation that industry has strong consideration of noise reduction methods on projects. A presentation was also provided detailing the outputs of a Defra commissioned project investigating the feasibility of introducing an underwater piling decibel limit in UK waters, which if introduced would require the use of noise reduction methods.
109. A clearer commitment to reducing noise levels would also support future European Protected Species (EPS) licence applications which may be required and are usually applied for post-DCO consent. This process requires three tests to be passed (see paragraph 96). Currently we do not believe sufficient evidence is provided to support compliance with test 2.

#### **Other comments**

110. Section 18(i) of the draft DCO lists a marine mammal mitigation plan as being a required document if piling is to occur. However, there is no link in the text to the Underwater Sound Management Strategy (Section 20), the outline version of which states this mitigation plan will form an annex of (Section 1.1.3, [APP-202](#)). Neither does it mention UXO clearance, as Section 21 of the DCO claims to use the same document. This makes the current wording contradictory as Section 18 implies the plan will only be developed if piling occurs. We also recommend links are made to vessel movement strategies to reduce collision risk in both the DCO and mitigation plan (see paragraph 116).
111. We return to our comment on the PEIR regarding the assumption that the extent of disturbance from piling is likely to be over-estimated due to noise losing its impulsive

characteristics with range [referenced in both [APP-056](#) and [APP-032](#)]. Our original comment was based on the disturbance assessment being undertaken using a dose response curve, which was generated based on field observations collected up to several km from the piling activity, and that animals will have reacted to the noise they received at that location.

112. We note the applicant's response to a similar comment from NRW on this matter (RR-011.34, [PDA-008](#)). We agree that the characteristics of the sound source should not be ignored, however, as the dose response curve is based on field observations, it already accounts for differences in behaviour relative to an individual's distance from the noise source and any differences in the characteristics of the sound at that distance.
113. We also note the applicants response that '*these ranges [single strike sound exposure level] predicted for Mona are much larger than the ranges measured in the Beatrice study (which was used to develop the dose-response curve), meaning that the frequency spectrum of sound used to derive the dose-response for Beatrice will differ and, for the same sound level (measured as SELs), the proportion of animals affected would likely be greater at closer distances compared to larger distances as the pulse characteristics of the sound are less dispersed. Thus, a proportional response curve from a study predicting smaller ranges will be more conservative when applied to a study predicting larger ranges*'. This statement requires evidence to support it, and if not available, it should be made clear this is the applicants opinion/interpretation.
114. We also agree that this is a topic which requires further study to establish ranges at which impulsive noise sources lose their impulsiveness.

### **Elevated underwater noise levels from sources other than piling and UXO clearance**

115. Please refer to our response to Action Point 25 from ISH2 ([EV3-006a](#)) regarding underwater noise from construction and operational vessel movements. We agree with Natural Resources Wales (NRW) Relevant Representations ([PDA-008](#), Unique Reference Identifier RR-011.27) that, "there is inadequate justification for an overall conclusion of low magnitude'. We note that the estimated numbers of animals disturbed by vessels and any subsequent conclusions are based on static impact radii. Given the known sensitivity of harbour porpoise, in particular to vessel noise, and the increase in the number of vessels in the area compared to baseline vessel traffic, we advise that the assessment is revised and quantified both for the project alone and in combination with other projects." We note that the Applicant's response ([PDA-009](#)) gives examples of the studies used within the Environmental Statement ([APP-056](#)); however, these are often based on either a single vessel, or a single type of vessel, whereas there would likely be a range of vessels (or other noise sources) occurring simultaneously. We recognise it is impractical to determine the impact ranges of all vessels that may be present. We therefore agree with the suggestion being put forward in advice from NRW of assuming a single track for all vessels from port to the array



area (e.g. the centre of the array), and using an impact radius taken from the literature to the estimated ensonified area.

### **Collision risk to marine mammals from construction and operational vessels**

116. JNCC did not provide comment on this potential risk in our Relevant Representations as we have no major concerns with the assessment or its conclusions. We provide the following information for clarity of our position noting aspects of this assessment were raised at the ISH2 (EV3-004a).
117. JNCC agree that vessels travelling at faster speeds pose a greater risk of collision, as does erratically moving vessels, such as those associated with recreational activities. We also agree evidence is available demonstrating that reducing or restricting vessel speeds can reduce the risk of collision for marine mammals (for example, those provided in Section 4.9.6 of APP-056).
118. The applicant has submitted an outline Vessel Traffic Management Plan (APP-200) which is of relevance to this discussion. Measures proposed within this plan include:
- Advance planning, scheduling and coordination of vessel operations to de-conflict and minimise simultaneous operation (SIMOPS).
  - Limitations on fuel types or vessel speeds to meet emissions requirements.
  - Passage planning and indicative transit routes.
119. All the above will help reduce collision risk for marine mammals however, there is no reference to this in the Environmental Limits sections for either the construction or operational stages. This is despite Section 1.7 stating the Marine Mammal Mitigation Protocol may need to be considered with developing the final version of this vessel plan. We also note the outline Marine Mammal Mitigation Plan makes no reference to measures to reduce collision risk or the Vessel Management Plan.
120. While we are in agreement with the ES conclusions, connectivity between these plans is required and clarity provided to support the conclusions in the ES of where measures being implemented will also reduce the risk of collision. We do not anticipate additional measures above what is currently proposed being required, rather acknowledgement of all the benefits. Given the conclusions of the assessment assume that not all collisions are lethal (paragraph 4.9.6.13, APP-056), and this is related to vessel size and transit speed (paragraph 4.9.6.8, APP-056), we advise that speed restrictions are imposed.
121. We also note the measures proposed to minimise disturbance to marine mammals and birds from transiting vessels (APP-203). We highlight that Table 1.1 claims to summarise issues raised during consultation, however this document was not presented to the marine mammal EWG, as illustrated by Table 1.1. We do, however, note the commitment to comply with the Wildlife Safe Scheme or similar, to reduce

potential disturbance impacts from vessel movements. It would be beneficial if this was also stated in the Vessel Traffic Management Plan.

### **North Anglesey Marine SAC**

122. In our RR (RR-033.48, [PDA-008](#)), we confirmed we agreed with the conclusion of no LSE to this site from piling and UXO clearance noise due to the distance of the project array area to this site.
  
123. We further clarify that this agreement assumes a low noise method, for example deflagration, is used for all UXO clearances. We do not agree with the conclusion of no LSE for high order clearances as the proposed array area is within 26km of this site, the current effective deterrent range (EDR) for this activity. As described in the Special Areas of Conservation (SACs) Assessment ([APP-032](#)) paragraph 1.7.3.135 , the EDR overlaps with 2% of the site (66km<sup>2</sup>); therefore when UXO clearance is considered alone, the affected area of the SAC would be within the 20% daily threshold. Twenty-two days of clearance would account for 0.24% of the seasonal threshold. The current in-combination assessment also suggests the thresholds would not be breached, however this would need to be reviewed nearer the time to reflect any other activities licensed in the interim period.
  
124. We agree that the current EDR for pin piles (15km) does not overlap with this site and highlight JNCC is about to commission a contract to review the harbour porpoise EDRs.
  
125. Additional comments on the draft DCO:
  - Section 18.-1(e): we question why the Marine Mammal Mitigation Plan is not listed here, noting our previous comments on how it is referenced within the draft DCO.
  - Section 29, Marine Noise Registry (MNR): The MNR has been developed by JNCC on behalf of Department for Environment, Food and Rural Affairs (DEFRA) and the UK devolved administrations to record human activities in UK seas that produce loud, low to medium frequency (10Hz – 10kHz) impulsive noise, and supports commitments made in the UK Marine Strategy. The DCO only commits to submitting data for piling and UXO clearance. Geophysical surveys will be conducted during the construction of this project and may use equipment that falls with the range of data to be collected by the MNR. While these surveys do not require to be licenced, we request this data is voluntarily submitted by the applicant. A commitment to do so in the DCO would be beneficial.

## Benthic ecology (offshore)

The following documents were reviewed in providing this response:

### Environmental Statement:

- Volume 1, Chapter 3: Project description (APP-050)
- Volume 1, Chapter 5: Environmental Impact Assessment methodology (APP-052)
- Volume 2, Chapter 1: Physical processes (APP-053)
- Volume 2, Chapter 2: Benthic subtidal and intertidal ecology (APP-054)
- Volume 2, Chapter 11: Inter-related effects – offshore (APP-063)
- Volume 5, Annex 5.1: Cumulative effects screening matrix (APP-084)
- Volume 5, Annex 5.2: Transboundary impacts screening (APP-085)
- Volume 6, Annex 1.1: Physical processes technical report (APP-086)
- Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report (APP-087)

### HRA:

- Stage 1 Screening report (APP-034)
- Stage 2 Information to support an Appropriate Assessment
  - Part 1, Introduction and background (APP-031)
- HRA integrity matrices (APP-035)
- Marine Conservation Zone screening report (APP-036)

### Offshore Plans:

- Offshore in-principle monitoring plan (APP-201)
- Mona Array Area – site characterisation report (APP-205)
- Offshore cable corridor – disposal site characterisation report (APP-206)

### draft Development Consent Order (dDCO):

- Draft Development Consent Order (AS-010)

126. The following advice relates to the offshore environment, extending out from the 12nm limit. For benthic ecology advice within 12nm, we defer to Natural Resources Wales (NRW).

### Overall comments

127. JNCC are of the opinion that not all seabed impacts have been fully considered and it is not always clear that the correct footprint values have been utilised within the analysis or between chapters. Further detail of this is provided in the below sections.
128. JNCC do not agree with the values attributed within the assessment of significant effects, covered in Sections 2.9, page 92, and 2.11, page 235, of Volume 2, Chapter 2: Benthic subtidal and intertidal ecology (APP-054). The magnitude of impact has been

assessed as too low, incorrect assumptions of feature sensitivity have been applied to the sea pens and burrowing megafauna communities Important Ecological Features (IEF), and the subsequent adverse significance has been under-represented. As an example, taking the 'as is' situation with a 'Low' magnitude of impact and a 'High' sensitivity, the adverse significance would be 'Minor or Moderate', as detailed on page 17 of Volume 1, Chapter 5: Environmental Impact Assessment methodology (APP-052), but has been reported as 'Minor'. We believe it would be more appropriate to take the worst-case scenario and apply a 'Moderate' adverse significance. We would therefore recommend that, as a minimum, all significance of effects be reassessed taking into account the worst-case scenario. In Section 5.3.6.8 and Table 5.4, page 14, of Volume 1 Chapter 5: Environmental Impact Assessment methodology (APP-052), the spatial extent of the impact is defined as "*Geographical area over which the impact may occur*". Including the whole licence area as the spatial extent is not proportionate to the identified impact pathway especially if the whole area has no opportunity to be impacted. This then gives an unrealistic percentage of impact area and subsequently a magnitude of impact that is not representative. Some more detailed examples are covered for specific sections below but we would recommend that all magnitude of impacts are re-assessed taking this into account.

129. Throughout the Environmental Statement and dDCO documentation there is little distinction between inshore and offshore, distinguished by the 12nm/territorial waters limit. Given the remit of Statutory Nature Conservation Bodies (SNCBs; i.e. JNCC and Natural Resources Wales, NRW) is divided based on this factor it would be helpful to have impacts, activities, and habitats broken down into these remits to allow JNCC to provide an accurate assessment. In particular, it would have been useful to have this delineation identified on all the maps provided and for benthic habitats and impacts that span the offshore and inshore to be assessed based on their offshore/inshore location. JNCC were unable to accurately assess benthic impact of the operations within the offshore environment due to impacts not being attributed directly to the offshore area (extending out from 12nm). This is of particular concern in relation to the export cables and the impacts on sandwave clearance.

## Comments on specific elements

### Decommissioning

130. JNCC have concerns around the expected decommissioning of the infrastructure, in particular around the decommissioning of gravity-based infrastructure and the full removal of all cables. Lessons learnt from the oil and gas industry have shown that the decommissioning of gravity-based infrastructure is not always feasible, or possible, leading to permanent habitat change. The impacts of this scenario should be considered.
131. JNCC welcomes the proposal to remove all cabling from the Array Area and Cable Corridor. However, we note this is not covered in the draft Development Consent

Order (AS-010). Based on our current experience, this is not always possible, especially when the cable is buried. Leaving buried cables *in situ* and removing un-buried sections would normally include protection of the cut end with rock dump increasing the final footprint of the project. Although JNCC acknowledge future advancement of decommissioning technology may solve this issue, this scenario has not been considered.

### **Volume 1, Chapter 3: Project description (APP-050)**

#### **Section 3.5.4.3, page 10 (APP-050)**

132. “If Mona infrastructure crosses any out of service cables, these will be removed where feasible.” It is not clear if any remediation (i.e. rock dump for protection) will be carried out on the cut ends of the out of service cables left on the seabed.

#### **Table 3.4, page 12 (APP-050)**

133. As the cable corridor includes both the inshore and offshore (outside 12nm) waters, it is not possible to determine the maximum design parameters for sandwave clearance in the offshore. We assume that the majority of sandwave clearance within this area will be inshore. However, this assumption may underestimate the actual impact on sandwaves located outside the 12nm territorial limit. Detailed information on the impact of activities on the offshore environment (occurring outside 12nm) is essential to allow for a full assessment of those impacts.

#### **Table 3.11 and 3.12, page 22, and Tables 3.14 to 3.17, pages 25 to 28 (APP-050)**

134. Values for the maximum seabed area (total foundations and scour protection for all foundations) were found to be incorrect in all six of the above listed tables and Table 4, page 154, of the draft Development Consent Order (AS-010). Assuming the values for the maximum seabed area per foundation and scour protection per foundation are correct, the total foundations and scour protection for all foundations values were found to be significantly underestimated (see table below). By our calculations, the following totals should be:



Table	Original total (m <sup>2</sup> )	Corrected total (m <sup>2</sup> )*	Underestimated difference (m <sup>2</sup> )
Table 3.11	284,360	401,472	117,112
Table 3.12	10,745	35,336	24,591
Table 3.14	735,488	1,038,336	302,848
Table 3.15	24,964	60,116	35,152
Table 3.16	612,084	724,896	112,812
Table 3.17	24,941	74,508	49,567

\* This is based on our interpretation of the data within the ES, notwithstanding our comments above on the numerous numerical errors throughout the ES.

135. An underestimation of the maximum footprint area will result in an underestimation of the total impact of the project on the benthic marine environment.

**Section 3.5.8.7, page 23 (APP-050)**

136. Drill arisings from drilling of pin piles will create cuttings piles. A maximum seabed impact area should be calculated for these as cutting piles will impact the local environment and should be considered in more detail. Cuttings piles can be considered as temporary or permanent impacts depending on local conditions and drill arisings themselves. Dispersion modelling of the drill arisings will detail the extent of potential impact on the benthic environment and provide more detailed information on the quantity and extent of smothering impact.

**Section 3.13.2.3, page 80 (APP-050)**

137. Wording in relation to cable decommissioning was found to be inconsistent between documents. This section suggests cables “*may be retrieved*” at decommissioning while Volume 2, Chapter 2: Benthic subtidal and intertidal ecology (APP-054) (Table 2.18, page 79) states all cables “*will be removed*” at decommissioning. JNCC assume all cables will be removed at decommissioning, but this needs to be clarified by the Applicant.

**Section 3.13.2.4, page 80 (APP-050)**

138. JNCC would expect all mattresses (concrete and frond) and rock bags used for cable protection to be removed at decommissioning. Not removing these will constitute a permanent habitat loss. The permanent introduction of hard substrates into a soft sediment environment would be a permanent habitat loss that leads to a regime shift of that habitat.

**Section 3.13.2.5, page 81 (APP-050)**

139. We would agree that the cable installation and removal impacts would have the same temporary impact. However, if cables were left *in situ* and required protection through rock dump (for example through cut ends or free spans), this would increase the permanent impact to the seabed and should be considered further. These impacts are part of the development, albeit during decommissioning. If the impacts are not considered prior to installation, then the final impact to the marine benthic environment will be significantly underestimated.

## **Volume 2, Chapter 1: Physical processes (APP-053)**

### **Section 1.9.5.10, page 83 (APP-053)**

140. We believe that the total Offshore Substation Platforms (OSP) footprint should be 20,180m<sup>2</sup> and not 19,500m<sup>2</sup> as detailed in comments above regarding the tables in Volume 1, Chapter 3: Project description (APP-050). Note, the calculations detailed here are based on our interpretation of the data within the ES, notwithstanding our comments above from Volume 1, Chapter 3: Project description (APP-050) on the numerous numerical errors throughout the ES. An underestimation of the maximum footprint area will result in an underestimation of the total impact of the project on the benthic marine environment.

## **Volume 2, Chapter 2: Benthic subtidal and intertidal ecology (APP-054)**

### **Table 2.8, page 31 (APP-054)**

141. We agree that Jack up vessel events on their own would be a temporary habitat loss/disturbance. However, jack up events regularly require extra stabilisation through rock dumping, particularly in softer seabed environments and/or within high dynamic environments. The extra rock dump required for jack up events has not been accounted for and should be considered a permanent impact and be included within the long term habitat loss/habitat alteration impact during construction, operation and maintenance, and also during decommissioning.
142. Foundation removal does not address gravity-based structures for turbines or OSPs. If these are not possible to decommission (see comments above), they should be treated as a permanent habitat change.
143. Introduction of additional rock protection has not been considered. For example, at cable cut ends if not fully removed, at cable free spans, jack up vessel stabilisation (as discussed above), cable crossings and protection, or scour protection.

### **Table 2.18, page 84 (APP-054)**

144. We welcome the suggested removal of all scour protection, cable protection, and crossing protection. However, the detail provided within this table contradicts details provided in Volume 1, Chapter 3: Project description (APP-050), Section 3.13.2.4, page 80 (see previous comment relating to Table 2.8, page 31 of APP-050). Furthermore, if

rock dump were to be used for protection, it is highly unlikely that the rock will be able to be removed and would therefore remain a permanent impact.

**Table 2.18, page 85 (APP-054)**

145. Changes in physical processes will occur at all three phases, not just the operation and maintenance phase. Decommissioning will affect physical processes, although at a much smaller scale, with the addition of rock dump and infrastructure that will be permanently left *in situ*.

**Section 2.9.2.27, page 103 (APP-054)**

146. We would not agree with a reduction in the sensitivity of the sea pens and burrowing megafauna communities from 'High' to 'Medium'. We acknowledge that sea pens have not been recorded within the site-specific surveys to date but sea pens do not have to be present to define this OSPAR Threatened and Declining habitat, as also acknowledged within this section. For this reasoning, it would not be appropriate to reduce the sensitivity to 'Medium' and it should remain as 'High'. This would also apply to all subsequent sections (e.g. Section 2.9.2.32).

**Section 2.9.2.51, page 110 (APP-054)**

147. We agree that the seabed will recover after the removal of the jack-up vessel's spud cans but only when no rock dump has been used for stabilisation or scour protection of the spud cans (see comment on Table 2.8 above).

**Section 2.9.5.10, page 146 (APP-054)**

148. JNCC do not agree with an assessment of a low magnitude of impact, considering over two million square meters (Section 2.9.5.7) of seabed will be permanently impacted/changed. Section 2.9.5.7 highlights the impact area and gives a percentage of that compared with the Mona benthic subtidal and intertidal ecology study area (0.17%). This is not helpful as those areas include large portions that will not be directly impacted by the operations. A more useful area comparison for calculating the impact percentage would be of the total direct and indirect (temporary) impact areas. Combining the Long-term habitat loss and Temporary habitat loss areas would provide a more meaningful impact percentage and subsequent meaningful magnitude.

**Section 2.9.5.22, page 150 (APP-054)**

149. JNCC do not agree with the suggestion that the permanent presence of cable and scour protection should be considered as permanent habitat alteration rather than permanent habitat loss. The permanent introduction of hard substrates into a soft sediment environment would be a permanent habitat loss that leads to a regime shift of that habitat (i.e. a permanent habitat alteration). It should therefore be considered as permanent habitat loss. This should be taken into account when re-assessing the magnitude of impact (Section 2.9.5.23, page 151).

**Section 2.9.6.6, page 153 (APP-054)**

150. JNCC recognise that settlement and subsequent recruitment on clean artificial structures is very complex. It should not be expected that colonisation will consist entirely of already present flora and fauna. Opportunistic colonisation will occur from flora and fauna that would not normally be recorded in the area due to the clean artificial surfaces allowing for opportunistic settlement. This has the potential to alter subsequent settlement and recruitment that can lead to a different final community composition.
151. Additionally, temporal variation will also determine the final community composition (e.g. studies have shown different community composition depending on the time of year when the artificial structure was introduced).

### **Benthic Ecology Conclusion**

152. The Applicant has provided a substantial quantity of information relating to the possible impacts which the development may have on the marine benthic environment. JNCC do not believe that the Applicant has assessed all impacts fully, in particular with regard to total infrastructure footprints, ancillary works requiring additional rock dump, and decommissioning operations.
153. Decommissioning operations have not been fully considered. JNCC appreciate that decommissioning will occur after a number of decades, however, it is important to consider all the impacts associated with decommissioning prior to construction and installation to ensure that all installations will be capable of being fully removed from the marine environment. It should also be noted that impacts should be considered permanent where infrastructure cannot be removed. JNCC have concerns around gravity-based foundations in this regard with further concerns around the need for additional rock dump to account for cable free spans, cable cut ends, and scour protection. Additional rock dump needs to be fully considered.
154. JNCC are concerned that the Applicant has reduced the sensitivity of the 'sea pen and burrowing megafauna community' Important Ecological Features (IEF), and an OSPAR Threatened and Declining habitat, from 'High' to 'Medium'. We also believe that the magnitude of impact has been assessed too low and the subsequent adverse significance has been under-represented.
155. To allow JNCC to accurately assess all impacts to the benthic environment from a development that spans terrestrial, inshore, and offshore waters, the offshore elements (those extending out from the 12nm territorial limit) need to be distinguished from the inshore (within 12nm). This is currently not addressed fully and without this level of detail, JNCC will not be able to adequately assess all the impacts.

Please contact me with any questions regarding the above comments.

Yours sincerely,

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