



# Marine Management Organisation

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03 June 2024

MMO Reference: DCO/2019/00005  
Planning Inspectorate Reference: ENO010117  
Identification Number: 20045232

Dear Richard Allen,

## **Planning Act 2008, E.On Climate and Renewables UK Ltd, Proposed Rampion 2 Offshore Wind Farm Order**

### **Deadline 4 Submission**

On 20 September 2023, the Marine Management Organisation (the MMO) received notice under section 56 of the Planning Act 2008 (the PA 2008) that the Planning Inspectorate (PINS) had accepted an application made by E.On Climate and Renewables UK Ltd (the Applicant) for determination of a development consent order (DCO) for the construction, maintenance and operation of the proposed Rampion 2 Offshore Wind Farm (the "DCO Application") (MMO ref: DCO/2019/00005; PINS ref: ENO0117). The DCO includes a draft Deemed Marine Licence (DML).

The Applicant seeks authorisation for the construction, operation and maintenance of the DCO Application, comprising of up to 90 wind turbine generators together with associated onshore and offshore infrastructure and all associated development. The associated development includes an offshore generating station with an electrical export capacity of in excess of 100 megawatts (MW) comprising up to 90 turbines, and array cables, in an area approximately 196 square kilometres (km<sup>2</sup>), located approximately 13 kilometres (km) south of the Sussex coast located to the west of the existing Rampion Offshore Windfarm.

The proposed development will comprise up to three offshore substations. Cables between the wind turbine generators (WTG), between the WTGs and the offshore substations, and between the offshore substations themselves and the landfall location at Climping, West Sussex. An underground cable connection between the landfall and a satellite substation known as Oakendene, and then onwards to connect into the existing National Grid substation at Bolney, together with an extension to the existing substation.

This document comprises the MMO's submission for Deadline 4. This written representation is submitted without prejudice to any future representation the MMO may make about the DCO Application throughout the examination process. This representation is also submitted without prejudice to any decision the MMO may make on any associated application for



consent, permission, approval or any other type of authorisation submitted to the MMO either for the works in the marine area or for any other authorisation relevant to the proposed development.

Yours faithfully.



Ethan Lakeman  
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# 1. Post-hearing submissions including written submissions of oral cases.

## 1.1 Hearing Attendance

- 1.1.1 The MMO attended (virtually) the Issue Specific Hearing 2 (ISH2) on 15<sup>th</sup> of May 2024. The MMO were joined by King's Councill (KC) representative Mr Reuben Taylor KC to represent the interests of the MMO in regard to our position on ongoing issues with the applicant's draft DCO.
- 1.1.2 Reuben Taylor KC made several representations on behalf of the MMO concerning the applicant's Draft Development Consent Order Rev D (REP3-003). These included issues previously raised by the MMO pertaining to the suitability, purpose, and practicability of Article 5. Further representations were made surrounding issues to paragraph 9 of Schedules 11 & 12 and conditions 3(5) and 10(1).
- 1.1.3 During ISH2 the MMO were asked by the ExA to provide comments on several issues. These included:
- 1.1.4 Position of noise modelling locations - The MMO were asked to provide comment on points raised by the ExA and Natural England relating to the position of noise modelling locations for piling particularly in relation to proximity to Marine Conservation Zones (MCZ) as appear in the Applicant's submission *Further information for Action Points 38 and 39 – Underwater Noise* (REP1- 020). The Applicant is going to confirm the reasoning for these positions as requested in Action Point 9 of Action Points arising from Issue Specific Hearing 2. The MMO provided comments on (REP1- 020) in Paragraphs 5.51-4.6.4 of our Deadline 2 response (REP2-035) and have nothing further to add at this stage but will await the Applicant's response.
- 1.1.5 Adaptive piling management - The MMO were asked to provide comment on the possible requirement for adaptive management of piling mitigation. The Applicant has stated they are considering the requirements for adaptive management and will provide further information at Deadline 4. The MMO await the submission of this information and will provide comments at Deadline 5. The MMO's most recent comments on the Applicant's proposed monitoring can be found in Paragraphs 5.2.1-7.7.4 of this Deadline response.
- 1.1.6 Applicant's proposed mitigation for black sea bream - The MMO were asked to provide comment on the applicant's proposed mitigation in relation to black sea bream, specifically in relation to the month of July. The MMO restated our position that we are still of the belief that a seasonal piling restriction of March 1<sup>st</sup> to July 31<sup>st</sup> inclusive, is required to mitigate against impact to black sea bream. The MMO also still believe that a behavioural noise threshold for black sea bream should be based on 135 dB SELs as per Hawkins *et al.* 2014.





- 1.1.7 The MMO were also asked to provide comments on Appendix H of the Applicant's Responses to Examining Authority's First Written Questions (ExQ1) - Appendix H - FS: Noise Thresholds for Black Seabream [REP3-051]. As per Action Point 15 the MMO have provided comments on proposed mitigation presented in this document in Section 4 of this Deadline Response.
- 1.1.8 Noise mitigation for seahorses – The MMO were asked to provide comment on the Applicant's proposed use of Double Bubble Curtains to mitigate against noise impacts on seahorse. The MMO defer to Natural England as the Statutory Nature Conservation Body on matters relating to seahorses as a protected features of MCZ's.
- 1.1.9 Herring spawning and larval drift – The MMO were asked to provide comments on the Applicant's claim that while habitat suitability assessments have identified substrate that is suitable for herring spawning, that there is no actual evidence that herring spawning is taking place. The MMO is still of the belief that if an area of substrate is identified as being suitable for herring spawning then it should be considered that herring spawning could be taking place and these areas should be protected accordingly. The MMO's most recent comments relating to herring spawning and appropriate behavioural threshold can be found in our response to *Applicant's Response to Examining Authority's First Written Questions Rev A (REP3-051)* provide in this Deadline response. a

## **1.2 Written Representation from Reuben Taylor KC on behalf of the MMO**

- 1.2.1 The MMO objects to the provisions relating to the process of transferring and/or granting the deemed marine licences set out in the draft DCO at Article 5.
- 1.2.2 If the application for the DCO is granted, the MMO will be the regulatory authority responsible for the enforcement of the provisions of the DMLs. As a result, it has to retain a record of the DML and who holds the benefit of that license in order to be able to fulfil its statutory responsibilities as it does in respect of any other Marine Licence.
- 1.2.3 The Marine and Coastal Access Act ("the 2009 Act") addresses the procedure for transfer of a Marine Licence as follows:
- "(7) On an application made by a licensee, the licensing authority which granted the licence—*
- (a) may transfer the licence from the licensee to another person, and*
- (b) if it does so, must vary the licence accordingly.*
- (8) A licence may not be transferred except in accordance with subsection (7)."*
- 1.2.4 The purpose of these provisions is to ensure that there is at all times a record of the person who has the benefit of the licence. That is because pursuant to the 2009 Act section 65(1), no person may carry on a licensable marine activity, or cause or permit any other person to carry on such an activity, except in accordance with a marine licence granted by the appropriate licensing authority. A person who contravenes



section 65(1), or fails to comply with any condition of a marine licence, commits an offence (see section 85(1) of the 2009 Act).

1.2.5 Thus, it is a key part of the enforcement provisions of the 2009 Act, that the MMO maintains a record of the person who has the benefit of a marine licence at all times.

1.2.6 In practice, the process of obtaining a transfer is relatively quick. Whilst the MMO officially indicates that this can take up to 13 weeks, it is an administrative task and in practice often much quicker and around 6 weeks. The MMO is not required to consult with any other body. As far as it is aware, the MMO has never refused a request to transfer a Marine Licence.

### The current draft DCO Article 5 Procedure

1.2.7 As presently drafted, dDCO Article 5(2) creates a power whereby the undertaker can:

- a) transfer to another person (“the transferee”) any or all of the benefit of the provisions of this Order (including the deemed marine licences); or
- b) grant to another person (“the lessee”) for a period agreed between the undertaker and the lessee any or all of the benefit of the provisions of the Order (including the deemed marine licences).

1.2.8 These provisions are also duplicated in large part by Article 5(3) which provides a power to the undertaker to:

- a) where an agreement has been made in accordance with sub-paragraph (2)(a), transfer to the transferee the whole of any of the deemed marine licences and such related statutory rights as may be agreed between the undertaker and the transferee; or
- b) where an agreement has been made in accordance with sub-paragraph (2)(b), grant to the lessee, for the duration of the period mentioned in sub-paragraph (2)(b), the whole of any of the deemed marine licences and such related statutory rights as may be so agreed.

1.2.9 The consent of the Secretary of State to a transfer/grant pursuant to Article 5(2) or 5(3) is required except where Article 5(8) applies. Where the Secretary of States consent is required, the dDCO provides that:

- a) The undertaker must consult the Secretary of State before making an application for consent under this article by giving notice in writing of the proposed application (see dDCO Article 5(5)); and
- b) The Secretary of State must consult the MMO before giving consent to the transfer or grant to another person of the benefit of the provisions of the deemed marine licences (see dDCO Article 5(6)).

1.2.10 The Secretary of State’s consent to the transfer or grant of a DML is not required and thus there is no requirement for consultation with the MMO prior to the undertaker making that transfer or grant where:



- a) the transferee or lessee is the holder of a licence under section 6 of the 1989 Act (licences authorising supply etc.); or
- b) the transferee or lessee is a holding company or subsidiary of the undertaker; or
- c) the time limits for claims for compensation in respect of the acquisition of land or effects upon land under this Order have elapsed and—
  - i. no such claims have been made,
  - ii. any such claim has been made and has been compromised or withdrawn,
  - iii. compensation has been paid in final settlement of any such claim,
  - iv. payment of compensation into court has taken place in lieu of settlement of any such claim, or
  - v. it has been determined by a tribunal or court of competent jurisdiction in respect of any such claim that no compensation is payable.

1.2.11 The dDCO also provides for 14 days written notice to be provided to the MMO prior to a transfer or grant taking effect and for certain details to be provided (dDCO Article 5(11)). These include a copy of the document effecting the transfer or grant signed by the undertaker and the person to whom the benefit of the powers will be transferred or granted (dDCO Article 5(10)(b)).

### The Basis for Objection

1.2.12 The MMO raises objection to Article 5 in relation to:

- a) The procedure seeking to duplicate the existing statutory regime set out in s72 of the 2009 Act
- b) The proposed procedure being cumbersome, more administratively burdensome, slower and less reliable than the existing statutory regime set out in s72 of the 2009 Act;
- c) The overlap in relation to DMLs as between Article 5(2) and 5(3);
- d) The power for an undertaker to grant a DML;
- e) The power to grant a DML for a period of time;
- f) The basis for disapplication of the need for Secretary of State's consent to a transfer/grant for DML is unrelated to any matters relating to marine licensing.
- g) The absence of any power provided to the MMO to change the DML held in its records to reflect any transfer.
- h) The overall effect on the ability of the MMO to enforce the marine licensing regime in respect of any transferred or granted DML.

### Previous DCOs

1.2.13 It is acknowledged that DCO's previously granted have removed the effect of s72 of the 2009 Act and made provision for the transfer of DMLs including by way of example, Sheringham Dudgeon OFW, Times Tideway Tunnel DCO and Sizewell C DCO.





- 1.2.14 However, it is to be noted that in very few if any do the relevant Examining Authorities (“ExAs”) explain the rationale for the approach adopted. The same is true of the relevant decision letters. To date, the Applicant has not provided the MMO with any ExA Report or Decision letter which explains why the approach it seems to adopt in the dDCO is appropriate nor indeed to be preferred to the existing statutory procedures.
- 1.2.15 In particular, the provisions set out in the dDCO (Revision D, 25 April 2024) are materially different from those previously included in DCOs which have been made.
- 1.2.16 The Applicant has pointed to the Dogger Bank Creyke Beck Offshore Wind Farm as a precedent. The ExA in that case addressed the issue of transfer at paragraph 15.25 and following. At Para15.26 it explained that the Applicant in that case and the MMO had reached agreement in relation to the issue of transfer as follows:

*“The MMO also requested that additional drafting be included in Article 8, such that it would be consulted prior to any transfer of the benefits of the Order, providing details such as the person responsible for carrying out the activities, location and timing of works etc (REP-274). The applicant and the MMO reached agreement on this point, such that version 5 of the draft DCO included the proposed insertion of a clause at Article 8(7) which would require the undertaker to consult the MMO prior to the transfer to another person; and inclusion of an amendment to Article 8(9) which requires the MMO to be informed in writing within 14 days (previously 21 days) should any agreement come into effect which transfers the relevant provisions to another person (REP-480). These proposed changes have been carried forward into Article 8 of the ExA’s recommended DCO, together with some minor changes to the drafting in the interests of clarity, which don’t materially alter the intention and effect of the articles which have been subject to examination.”*

- 1.2.17 Thus, the Dogger Bank decision did not determine that the mechanism now proposed is to be preferred to the statutory mechanisms – rather it was a compromise reached between the parties in that case. The MMO has consistently challenged provisions of this nature in draft DCOs as the existing statutory procedure is to be preferred to mitigate risk on all parties by using established mechanisms.
- 1.2.18 None of the other ExA Reports or Decision Letters relating to the projects referred to by the Applicant (Hornsea Four Offshore Wind Farm Order 2023, East Anglia One North Offshore Wind Farm Order 2022, East Anglia Two Offshore Wind Farm Order 2022, Sheringham Shoal and Dudgeon Extensions Offshore Wind Farm Order 2024, Sizewell C or Thames Tideway Tunnel) contain any rationale for the transfer provisions. In other words, to date the Applicant has not identified any reasoned justification in any previous decision which explains why the transfer process which it proposes is justified and to be preferred over the existing statutory mechanism.
- 1.2.19 The MMO, of course, accept that there is a need for consistency in decision making. However, a decision maker is not bound by previous decisions and can depart from them where there is good reason to do so.





1.2.20 If the Secretary of State in the present case determined that on balance, the existing statutory mechanisms relating to transfer of marine licenses is to be preferred to the mechanism proposed in the dDCO, then it is open to him to so determine provided he gives reasons for so doing. The absence of any reasoned decision which determines the point previously and which provides a rationale for departing the existing statutory mechanism is a reason to look at this issue again.

### Materially Inferior Procedure

1.2.21 As explained above, the statutory system for transfer requires an application to the MMO. There is no further consultation, and the transfer is given effect by amendment to the licence holder section of the Marine Licence. The MMO does not have any relevant statutory or non-statutory policy relating to the transfer of a licence – it is essentially a purely administrative act to ensure that the licence contains the name of the person with the benefit of the licence. As explained, as far as the MMO is concerned it has never refused an application for a transfer.

1.2.22 In contrast, the dDCO Article 5 procedure requires:

- a) Pre-application consultation with the Secretary of State
- b) An application to the Secretary of State;
- c) Consultation with the MMO;
- d) A decision by the Secretary of State;
- e) Notification of the decision;

1.2.23 Given the contrast between the two procedures, the MMO does not consider that the dDCO procedure has any material procedural or administrative advantages over the existing statutory process. Indeed, the dDCO procedure is decidedly more complex, is more administratively burdensome for all parties, and will take longer to give effect to a transfer. The MMO believes that as a result the dDCO should be amended to remove the mechanisms to enable transfer of the DMLs and to remove the exclusion of the existing s72 process; the statutory regime which already exists is a much better option for all and should remain applicable.

### The Overlap

1.2.24 There is an overlap in the powers set out in the dDCO Article 5(2) and Article 5(3) in that the DMLs can be transferred under both. It is entirely unclear why this is required.

1.2.25 The equivalent provision in the Sheringham Dudgeon scheme to dDCO Article 5(2) is at Appendix A. It provides:

5(2) Subject to paragraphs (6), (7) and (8) the undertaker may with the written consent of the Secretary of State—

- (a) transfer to another person (“the transferee”) any or all of the benefit of the provisions of this Order (**excluding the deemed marine licences** referred to in paragraph (3) below) and such related statutory rights as may be agreed between the undertaker and the transferee; and



(b) grant to another person (“the lessee”) for a period agreed between the undertaker and the lessee any or all of the benefit of the provisions of the Order (**excluding the deemed marine licences** referred to in paragraph (3) below) and such related statutory rights as may be so agreed.

except where paragraph (8) applies, in which case no consent of the Secretary of State is required.” (emphasis added)

1.2.26 Thus, in the Sheringham case, Article 5(2) did not address the transfer of a DML at all nor did it provide for the grant of a DML by the undertaker; rather the powers in relation to DMLs were addressed in Article 5(3) of the Sheringham DCO:

*“5(3) Subject to paragraph (6), the undertaker may with the written consent of the Secretary of State and where an agreement has been made in accordance with paragraph (2)(a), transfer to the transferee the whole of any deemed marine licences and such related statutory rights as may be agreed between the undertaker and the transferee, except where paragraph (8) applies, in which case no consent of the Secretary of State is required.”*

1.2.27 Thus, the Sheringham DCO provided only for the transfer of a DML to another party. **It did not provide the ability to grant a DML for a period agreed by the undertaker.**

1.2.28 The wording which has been changed in the dDCO in the present case to include marine licences within Article 5(2) has no precedent which the MMO has been able to identify and has not been justified by the Applicant.

1.2.29 The Sheringham DCO addressed the powers relating to the transfer of DMLs separately from the transfer of other rights i.e., the DML related powers were addressed in Article 5(3) and not 5(2).

1.2.30 The drafting of dDCO in the present case for Article 5(3) continues to relate to DMLs. But that has given rise to an unnecessary and confusing duplication of powers as between dDCO Articles 5(2) and 5(3).

1.2.31 If the dDCO is to contain provisions relating to the transfer of a DML, it is much better to amend dDCO Article 5(2) to exclude DMLs and to have transfer addressed in a separate provision i.e. 5(3) as was done in Sheringham. The overlap of powers must be addressed by further changes to the draft.

### The Grant of a DML

1.2.32 dDCO Articles 5(2)(b) and 5(3)(b) seek to make provision for the undertaker to “grant” another person the “benefit of the provisions of the Order (including the deemed marine licences) and such related statutory rights as may be so agreed” or “the whole of any of the deemed marine licences and such related statutory rights as may be so agreed”.

1.2.33 This appears to be drawn from Article 9(1)(b) of the Sizewell C DCO, although it is unclear from the wording of that provision whether the power to grant “the benefit of the provisions of this Order and such related statutory rights” includes the power to



grant a new DML to a third party. Further, the rationale for the inclusion of such a power or the basis upon which it is to be exercised is not explained in the DCO, the ExA Report or the Decision Letter for the Sizewell C project.

1.2.34 The Applicant has not justified or explained:

- a) Why it is necessary for it to have the power to **grant** a DML;
- b) Why it is necessary for it to have the power to **grant** a DML when it would have a power to transfer a DML;
- c) The basis on which such a power to grant will be exercised;
- d) The basis on which it will determine whether or not grant a DML
- e) The basis on which it will determine the conditions to be imposed on the grant of a DML;
- f) Why it is appropriate for it to be able to grant DMLs without the consent of the Secretary of State or the MMO

1.2.35 The MMO considers that the power sought for the undertaker to grant a DML would confuse and usurp its statutory function. It would allow licences to be granted on terms wholly different from those accepted as part of the DCO process. The power to grant a DML should therefore be removed from the dDCO.

1.2.36 In the event that its primary position that the existing statutory mechanism should remain applicable is rejected, the MMO considers that, at most, the power to transfer the benefit of an existing DML to another person is all that is required.

#### A Time Limited DML

1.2.37 dDCO Articles 5(2)(b) and 5(3)(b) also seek to make provision for a DML to be granted by the undertaker to another person for a limited period of time.

1.2.38 The only precedent for this provision which the MMO has found is Article 9(1)(b) of the Sizewell C DCO, to the extent that that power applies to DMLs (which is unclear). The Sheringham DCO does not provide a power for the undertaker to grant a DML for a limited period of time.

1.2.39 The Applicant has not explained why these provisions are necessary or why a departure from the statutory provisions within the 2009 Act is justified.

1.2.40 In the event that its primary position that the existing statutory mechanism should remain applicable is rejected, the MMO considers that, if the intention is to enable the transfer of the benefit of a DML to a third party for a defined period of time, with the benefit of that DML then reverting to the undertaker at the end of that period, a provision can be drafted to give effect to this.

#### Disapplication of the Secretary of State's Consent

1.2.41 As explained above, Article 5(8) disapplies the need for the consent of the Secretary of State to be obtained and the need for any consultation with the MMO where:

- (a) the transferee or lessee is the holder of a licence under section 6 of the 1989 Act (licences authorising supply etc.); or





- (b) the transferee or lessee is a holding company or subsidiary of the undertaker; or
- (c) all claims for compensation in respect of the acquisition of land or effects upon land under this Order have elapsed or been resolved

1.2.42 Whilst it is recognised that the drafting here reflects earlier DCOs, the rationale for the removal of the need for consent or consultation when any of these criteria are met has not been explained. The Applicant has not explained why the fact that the transferee holds a s6 licence should mean that the consent of the Secretary of State is not required nor that consultation with the MMO is unnecessary. The Applicant has not explained why a transfer of a DML to a holding company or subsidiary of the undertaker should mean that the consent of the Secretary of State is not required nor that consultation with the MMO is unnecessary.

1.2.43 Lastly, it is entirely unclear to the MMO why there should be a need for consultation with the Secretary of State (and consultation with the MMO) relating to a transfer of a DML prior to the resolution of claims for compensation for land acquisition but not afterwards. The rationale for this provision has not been explained by the Applicant.

1.2.44 In the absence of any clear justification for excluding a consent process, consent should be required to reflect the process in section 72 of the 2009 Act. In other words, a transfer of a DML should not be given effect unless it has been approved by a decision maker. The MMO's primary position is that the statutory mechanism should remain applicable and that it should remain the relevant decision maker. If that is rejected then the next best option would be for the Secretary of State to be the relevant decision maker but unable to consent to the transfer without the approval of the MMO. If that is rejected, then the next best option would be for the Secretary of State to be the relevant decision maker in consultation with the MMO. It is not acceptable, however, for the Applicant (or any successor) to be able to transfer a DML to whomever they wish whenever they wish which is eventually the effect of the provisions in the dDCO.

#### Power to Amend DMLs to Reflect a Transfer

1.2.45 The MMO is a statutory body. As a result, it can only act where it has statutory power to do so. The dDCO provides for the transfer of a DML, however it does not give the MMO the power to amend the DML it holds in its records upon notification that a transfer is to occur. This has the potential to cause real difficulties going forward since, in the absence of such a power, the MMO records will not be changed. This is likely to cause significant administrative difficulties and could result in obstacles to enforcement.

1.2.46 Such a confusion is but one symptom of the complications which result from the dDCO's proposed transfer mechanism. This reinforces the MMO's primary position that the existing statutory mechanism is to be preferred and to remain applicable.

#### Overall Effect on Ability to Enforce

1.2.47 As drafted, the ability to transfer licences, grant licences for a limited time, to transfer/grant without consultation and without providing a power for the MMO to amend its records, will give rise to significant enforcement difficulties for the MMO





and has the potential to prejudice the operation of the system of marine regulatory control in relation to the proposed development. Further, the dDCO procedure is administratively burdensome and time consuming.

1.2.48 All of these difficulties can be avoided by retaining the existing statutory regime which is simple to operate and relatively speedy. The best way forward for all concerned is to retain the statutory procedure for transfer as set out in s72 of the 2009 Act. This will also require changes to Part 1 Paragraph 7 of each dDML.

#### Schedule 11 and 12 (Deemed Marine Licences)

##### Part 1: paragraph 9 & Part 2: Condition 3(5)

1.2.49 The MMO seeks changes to Part 1 paragraph 9 and Part 2 Condition 3(5) to both DMLs. The MMO's proposed amendments are shown in bold (the Applicant's wording struck through):

*"Part 1: Condition 9: "Any amendments to or variations from the approved plans, protocols or statements must be in accordance with the principles and assessments set out in the environmental statement and approval for an amendment or variation may only be given in relation to immaterial changes where it has been demonstrated to the satisfaction of the MMO that the amendment or variation ~~is unlikely to~~ **will not** give rise to any material new or materially different environmental effects from those assessed in the environmental statement."*

*Part 2: Condition 3(5): "Where the MMO's approval is required under paragraph (3), approval may be given only where it has been demonstrated to the satisfaction of the MMO that the works for which approval is sought ~~are unlikely to~~ **will not** give rise to any material new or materially different environmental effects from those assessed in the environmental statement."*

1.2.50 These changes are necessary to ensure that the power to amend or vary is consistent with the requirements of the EIA regime as explained in the case of R. (Barker) v Bromley LBC [2007] 1 A.C. 470. That case concluded that EIA will be required at stages subsequent to an initial grant of consent where those likely significant effects were not identified at the earlier consenting stage. It follows that a mechanism to permit a variation or amendment will not be lawful until it prevents any possibility of a materially new or different significant environmental effects arising as a result of the variation or amendment.

#### Condition 10(1)

1.2.51 Condition 10(1) Force Majeure provides as follows:

*"If, due to stress of weather or any other cause the master of a vessel determines that it is necessary to deposit the authorised deposits within or outside of the Order limits because the safety of human life or if the vessel is threatened, within 48 hours full details of the circumstances of the deposit must be notified to the MMO. (2) The unauthorised deposits must be removed at the expense of the undertaker unless written approval is obtained from the MMO."*



1.2.52 The MMO has previously requested the removal of this clause. That is because it unnecessarily duplicates the effect of s.86 of the 2009 Act. If it is to be retained, then the relationship between this clause and section 86 of the 2009 Act should be clarified.

## 2. MMO Comments on Applicant's update to Draft DCO (Revision D)

2.1 The MMO have included an amended table from our Deadline 3 response, which details the outstanding issues relating to the DCO.



Table 1 - MMOs outstanding comments on the draft Deemed Consent Orders and Deemed Marine Licences.

Main DCO		
	Part 2 Principal Powers	MMO Comments and amendments
	5 Benefits of the Order	The MMOs ongoing concerns about Article 5 have been included above in Section 1 of this response.
	Schedule 11 – Deemed Marine Licence	
	Part 1	
	2.(b) “...(transmission);;”	Remove second “;”
	7. “The provisions of section 72 (variation, suspension, revocation and transfer) of the 2009 act apply to this licence except that the provisions of section 72(7) and (8) relating to the transfer of the licence only apply to a transfer not falling within article 5 (benefit of the Order) of the Order.”	Please see our legal representation by Reuben Taylor KC in section 1 of this response.
	9. Any amendments to or variations from the approved plans, protocols or statements must be in accordance with the principles and assessments set out in the environmental statement and approval for an amendment or variation may only be given in relation to immaterial changes where it has been demonstrated to the satisfaction of the MMO that the amendment or variation is unlikely to give rise to any material new or materially different environmental effects from those assessed in the environmental statement.	The MMO’s previous comments have been only partially integrated. The MMO would like to see strengthening of the wording for clarity and to ensure MMO is able to regulate sufficiently robustly. MMO proposed changes in bold:  “Any amendments to or variations from the approved plans, protocols or statements must be in accordance with the principles and assessments set out in the environmental statement and approval for an amendment or variation may only be given in relation to immaterial changes where it has been demonstrated to the satisfaction of the MMO that the amendment or variation <del>is unlikely to</del> <b>will not</b> give rise to any material new or materially different environmental effects from those assessed in the environmental statement.”
	Part 2 Conditions	
	Condition 3(2) “[...] All operations and maintenance activities shall be carried out in accordance with the submitted operations and maintenance plan.”	The operations should be in accordance with the plan as approved, not simply submitted. Amended with additional wording allowing for alternatives to be agreed in writing to allow for flexibility. MMO proposed changes in bold:



		<p><i>"All operations and maintenance activities should be carried out in accordance with the <b>approved submitted</b> operations and maintenance plan <b>unless otherwise agreed in writing between the applicant and the MMO.</b>"</i></p>
	<p>Condition 3(5) <i>"Where the MMO's approval is required under paragraph (3), approval may be given only where it has been demonstrated to the satisfaction of the MMO that the works for which approval is sought are unlikely to give rise to any material new or materially different environmental effects from those assessed in the environmental statement."</i></p>	<p>This should accord with the same standard proposed in Part 1(9), above. MMO proposed changes in bold:</p> <p><i>"Where the MMO's approval is required under paragraph (3), approval may be given only where it has been demonstrated to the satisfaction of the MMO that the works for which approval is sought <del>are unlikely to</del> <b>will not</b> give rise to any material new or materially different environmental effects from those assessed in the environmental statement."</i></p>
	<p>Condition 4. Any time period given in this licence given to either the undertaker or the MMO may be extended with the written agreement of the other party.</p>	<p>The MMO would like clarification in terms of which time periods the applicant is considering would apply here (both in relation to the applicant and also the MMO).</p>
	<p>Condition 8(3) <i>"... structures above 60meters"</i></p>	<p>Needs space, e.g. <i>"... structures above 60 meters"</i></p>
	<p>Condition 9(8) <i>"All dropped objects must be reported to the MMO using the Dropped Object Procedure Form as soon as reasonably practicable following the undertaker becoming aware of an incident. On receipt of the Dropped Object Procedure Form, the MMO may require relevant surveys to be carried out on the undertaker (such as side scan sonar) if reasonable to do and the MMO may require obstructions which are hazardous to other marine users to be removed from the seabed at the undertaker's expense if reasonable to do so."</i></p>	<p>This passage has been weakened since the MMO's last requested change. The MMO requires a time frame for reporting. The Dropped Object Procedure Form isn't defined, so shouldn't be capitalised here. The MMO requires a broader discretion on the reasons for removing obstructions so should not be bound by the higher standard of demonstrating that the obstructions be hazardous to other marine users. (Note that any requirement must be reasonable in any event). Other minor changes recommended for clarity. MMO proposed changes in bold:</p> <p><i>"Condition 9(8) All dropped objects must be reported to the MMO using the <b>dropped object procedure form</b> <del>Dropped Object Procedure Form</del> as soon as reasonably practicable <b>and in any event within 24 hours</b> of the undertaker becoming aware of an incident. On receipt of the dropped object procedure form, the MMO may require</i></p>





		<p>relevant surveys to be carried out by the undertaker (such as side scan sonar) if reasonable to do so. <del>And the</del> <b>On receipt of such survey results</b> the MMO may require <b>specific</b> obstructions <del>which are hazardous to other marine users</del> to be removed from the seabed at the undertaker's expense if reasonable to do so."</p> <p>The MMO would like to update the Applicant with regards to Condition 9(1) that we are still working with our Strategic Renewables Unit (SRU) to reach the final wording for this condition. The MMO SRU are developing new wording for this condition that will be included in all future DCO's.</p>
	<p>Condition 10(1) Force Majeure <i>"If, due to stress of weather or any other cause the master of a vessel determines that it is necessary to deposit the authorised deposits within or outside of the Order limits because the safety of human life or if the vessel is threatened, within 48 hours full details of the circumstances of the deposit must be notified to the MMO. (2) The unauthorised deposits must be removed at the expense of the undertaker unless written approval is obtained from the MMO."</i></p>	<p>Please refer to comments in section 1.</p>
	<p>Condition 12 (3) <i>The MMO must determine an application for approval made under condition 11 within a period of four months commencing on the date the application is received by the MMO, unless otherwise agreed in writing with the undertaker.</i></p>	<p>Condition should be removed in its entirety. The MMO has internal Key Performance Indicators (KIPs) which work towards a 13 week turn around. The MMO will never unduly delay but cannot be bound by arbitrary deadlines imposed by the applicant since this would potentially prejudice other licence applications by offering expediency to the applicant at the expense of other applications. It is also unclear what consequences would result if this deadline was not met, and how that would impact on the MMO's regulatory function.</p>
	<p>Condition 16(2)(b)  <i>"(2) Subject to receipt from the undertaker of specific proposals pursuant to this condition, the pre-construction survey proposals must have due</i></p>	<p>Considered too limiting, see suggested amendments in bold:  <i>"(2) Subject to receipt from the undertaker of <b>specific proposals pursuant to this condition, the pre-construction survey proposals must have due regard to the need to</b></i></p>



	<i>regard to the need to undertake— [...] (b) a survey to determine the location, extent and composition of chalk habitats, stony reef and potential Sabellaria spinulosa reef features, potential nesting sites for black sea bream, and peat and clay exposures as set out within the outline in-principle monitoring plan.”</i>	<i>undertake— [...] (b) a survey to determine the location, extent and composition of chalk habitats, stony reef and potential Sabellaria spinulosa reef features, potential nesting sites for black sea bream, and peat and clay exposures <b>and any other species or features</b> as set out within the outline in-principle monitoring plan.”</i>
	Condition 16(3): “(3) The undertaker must carry out the surveys agreed under sub-paragraph (1) and provide the baseline report to the MMO in the agreed format and in accordance with the agreed timetable, unless otherwise agreed in writing by the MMO and submitted to the MCA as Geographical Information System data referenced to WGS84 datum.”	Unclear what the ‘agreed timetable’ referred to here is, applicant is asked to clarify.
Schedule 12: Deemed Marine Licence		
Part 1		
	4.(e) “plastic and synthetic material” 4.(g) “... other chemicals ...”	‘Synthetic materials’ and ‘other chemicals’ are potentially very broad categories, is the MMO happy with this or do these need additional definitions or qualifications?  <b>Question to be raised internally with MMO.</b>
	7. “The provisions of section 72 (variation, suspension, revocation and transfer) of the 2009 act apply to this licence except that the provisions of section 72(7) and (8) relating to the transfer of the licence only apply to a transfer not falling within article 5 (benefit of the Order) of the Order.”	Please see section 1 of this response for further information on the MMOs continued position on Part 1 (7).



	<p>9. Any amendments to or variations from the approved plans, protocols or statements must be in accordance with the principles and assessments set out in the environmental statement and approval for an amendment or variation may only be given in relation to immaterial changes where it has been demonstrated to the satisfaction of the MMO that the amendment or variation is unlikely to give rise to any material new or materially different environmental effects from those assessed in the environmental statement.</p>	<p>The MMO's previous comments have been only partially integrated. Strengthening of the wording for clarity and to ensure MMO is able to regulate sufficiently robustly. MMO proposed changes in bold:</p> <p><i>"Any amendments to or variations from the approved plans, protocols or statements must be in accordance with the principles and assessments set out in the environmental statement and approval for an amendment or variation may only be given in relation to immaterial changes where it has been demonstrated to the satisfaction of the MMO that the amendment or variation is <del>unlikely to</del> <b>will not</b> give rise to any material new or materially different environmental effects from those assessed in the environmental statement."</i></p>
Part 2 Conditions		
	<p>Condition 3(2) "[...] All operations and maintenance activities shall be carried out in accordance with the submitted operations and maintenance plan."</p>	<p>The operations should be in accordance with the plan as approved, not simply submitted. Amended with additional wording allowing for alternatives to be agreed in writing to allow for flexibility.</p> <p><i>"All operations and maintenance activities should be carried out in accordance with the <del>submitted</del> <b>approved</b> operations and maintenance plan <b>unless otherwise agreed in writing between the applicant and the MMO.</b>"</i></p>
	<p>Condition 3(5) "Where the MMO's approval is required under paragraph (3), approval may be given only where it has been demonstrated to the satisfaction of the MMO that the works for which approval is sought are unlikely to give rise to any material new or materially different environmental effects from those assessed in the environmental statement."</p>	<p>This should accord with the same standard proposed in Part 1(9), above. MMO proposed changes in bold:</p> <p><i>"Where the MMO's approval is required under paragraph (3), approval may be given only where it has been demonstrated to the satisfaction of the MMO that the works for which approval is sought <del>are unlikely to</del> <b>will not</b> give rise to any material new or materially different environmental effects from those assessed in the environmental statement."</i></p>
	<p>Condition 4. Any time period given in this licence given to either the undertaker or the MMO may be</p>	<p>MMO would still like clarification in terms of which time periods the applicant is considering would apply here (both in relation to the applicant and also the MMO).</p>



	extended with the written agreement of the other party.	
	<p>Condition 9(8) <i>“All dropped objects must be reported to the MMO using the Dropped Object Procedure Form as soon as reasonably practicable following the undertaker becoming aware of an incident. On receipt of the Dropped Object Procedure Form, the MMO may require relevant surveys to be carried out on the undertaker (such as side scan sonar) if reasonable to do and the MMO may require obstructions which are hazardous to other marine users to be removed from the seabed at the undertaker’s expense if reasonable to do so.”</i></p>	<p>This passage has been weakened since the MMO’s last requested change. The MMO requires a time frame for reporting. The Dropped Object Procedure Form isn’t defined, so shouldn’t be capitalised here. The MMO requires a broader discretion on the reasons for removing obstructions so should not be bound by the higher standard of demonstrating that the obstructions be hazardous to other marine users. (Note that any requirement must be reasonable in any event). Other minor changes recommended for clarity.</p> <p><i>“Condition 9(8) All dropped objects must be reported to the MMO using the <b>dropped object procedure form</b> <del>Dropped Object Procedure Form</del> as soon as reasonably practicable <b>and in any event within 24 hours</b> of the undertaker becoming aware of an incident. On receipt of the dropped object procedure form, the MMO may require relevant surveys to be carried out by the undertaker (such as side scan sonar) if reasonable to do so. <del>And the</del> <b>On receipt of such survey results</b> the MMO may require <b>specific</b> obstructions <del>which are hazardous to other marine users</del> to be removed from the seabed at the undertaker’s expense if reasonable to do so.”</i></p> <p>The MMO would like to update the Applicant with regards to Condition 9(1) that we are still working with our Strategic Renewables Unit (SRU) to reach the final wording for this condition. The MMO SRU are developing new wording for this condition that will be included in all future DCO’s.</p>
	<p>Condition 10(1) Force Majeure <i>“If, due to stress of weather or any other cause the master of a vessel determines that it is necessary to deposit the authorised deposits within or outside of the Order limits because the safety of human life or if the vessel is threatened, within 48 hours full details of the circumstances of the deposit must be notified to the MMO. (2) The unauthorised deposits must be removed at the expense of the undertaker unless written approval is obtained from the MMO.”</i></p>	<p>Please refer to comments in section 1.</p>





	Condition 12 (3) <i>“The MMO must determine an application for approval made under condition 11 within a period of four months commencing on the date the application is received by the MMO, unless otherwise agreed in writing with the undertaker.”</i>	Condition should be removed in its entirety. The MMO has internal KIPs which work towards a 13 week turn around. The MMO will never unduly delay but cannot be bound by arbitrary deadlines imposed by the applicant since this would potentially prejudice other licence applications by offering expediency to the applicant at the expense of other applications. It is also unclear what consequences would result if this deadline was not met, and how that would impact on the MMO’s regulatory function.
	Condition 16 (2)(b) <i>“(2) Subject to receipt from the undertaker of specific proposals pursuant to this condition, the pre-construction survey proposals must have due regard to the need to undertake— [...] (b) a survey to determine the location, extent and composition of chalk habitats, stony reef and potential Sabellaria spinulosa reef features, potential nesting sites for black sea bream, and peat and clay exposures as set out within the outline in-principle monitoring plan.”</i>	Considered too limiting, see suggested amendments in bold:  <i>“(2) Subject to receipt from the undertaker of specific proposals pursuant to this condition, the pre-construction survey proposals must have due regard to the need to undertake— [...] (b) a survey to determine the location, extent and composition of chalk habitats, stony reef and potential Sabellaria spinulosa reef features, potential nesting sites for black sea bream, and peat and clay exposures <b>and any other species or features</b> as set out within the outline in-principle monitoring plan.”</i>
	Condition 16(3): <i>“(3) The undertaker must carry out the surveys agreed under sub-paragraph (1) and provide the baseline report to the MMO in the agreed format and in accordance with the agreed timetable, unless otherwise agreed in writing by the MMO and submitted to the MCA as Geographical Information System data referenced to WGS84 datum.”</i>	Unclear what the ‘agreed timetable’ referred to here is, Applicant is asked to clarify.



### 3. MMO Comments on the Statements of Commonality of Statements of Common Ground

- 3.1 The Applicant submitted an updated Statements of Commonality of Statements of Common Ground (Rev B) at Deadline 2. Since no further updated versions have yet been submitted the MMO refers to comments made in Section 3 of our Deadline 3 response (REP3-076).
- 3.2 The MMO await the submission of the applicant's updated Statement of Commonality of Statements of Common Ground (SoCG) expected at Deadline 4.
- 3.3 The MMO considers that there remain areas of disagreement that have not yet been resolved. The MMO would welcome a meeting with the Applicant to discuss these in detail prior to the next deadline. The last meeting between the applicant and the MMO to discuss issues pertaining to the SoCG was 23rd February 2024.

### 4. MMO Response to Action Points arising from Issue Specific Hearing 2.

- 4.1 The MMO has consulted our Technical Advisor, the Centre for Environment, Fisheries and Aquaculture Science (Cefas) to provide advice on the following Action Point:

*MMO to respond to Appendix H of the Applicant's Responses to Examining Authority's First Written Questions (ExQ1) - Appendix H - FS: Noise Thresholds for Black Seabream [REP3-051] for the black seabream spawning ground exclusion using the 135db contour with the 20db noise mitigation.*

#### 4.2 Underwater Noise comments

- 4.2.1 The MMO support that the Applicant is considering (and proposing) the application of various noise abatement systems and options. The Applicant has provided further information in the form of the following two documents: Appendix H FS: Noise Thresholds for Black Seabream (REP3-051), and Appendix I MM: Noise Abatement presented in the In Principle Sensitive Features Mitigation Plan (REP3-051), has therefore been modelled for monopile and multileg foundations. The underwater noise abatement of up to 20 dB is to be achieved through the use of a combination of measures, comprising the double big bubble curtain (DBBC) as the principal measure, together with, for the purposes of the modelling and zoning exercise, the Piling Under Limited Stress Equipment (PULSE) or MENCK Noise Reduction Unit (MNRU) hammer mitigation, although the Applicant notes that the actual equipment to be used will be selected based on the most appropriate equipment available at the time. The MMO agree with the Applicant that the primary objective of the mitigation is to achieve the required (and also greatest) noise reduction levels (in respect of an agreed threshold) rather than specify precise equipment at this stage.
- 4.2.2 As previously advised by the MMO (REP3-076) evidence (i.e., references) should be provided to support the dB reduction for each option proposed, including with respect to frequency. [The efficacy of a noise abatement system to reduce the risk of impact



depends on the frequency range at which sound energy is reduced and on the target species, as each species is sensitive to a certain frequency range].

#### 4.3 Fisheries comments

- 4.3.1 The information supplied in Appendix H (REP3-051) presents the results of an UWN modelling exercise used to define the extent of the array area which would fall within a piling exclusion zone based on modelling of the 135 dB SELss threshold (i.e., where mitigated piling cannot realistically be undertaken whilst maintaining a received noise level of less than 135 dB within the Kingmere MCZ). Exclusion zones for piling of monopile and multileg foundations based on modelling of the 135 dB SELss threshold are presented in Figures H-1 and H-3. Piling exclusion zones of monopiles and multileg foundations based on modelling of the 141 dB SELss threshold have also been included (Figures H-2 and H-4) for comparison. All scenarios include a noise abatement reduction of 20 dB, following the Applicant's proposed approach of combining noise abatement measures of a Double Big Bubble Curtain together with the PULSE or MNRU hammer mitigation).
- 4.3.2 Figures H-1 – H-4 show that UWN modelling based on the 135 dB SELss behavioural response threshold (as per Hawkins *et al.*, 2014), produces larger piling exclusion zones within the Rampion array for both mono- and multileg (pin) piling scenarios, compared to modelling based on the unsupported 141 dB threshold. This is to be expected given that a lower behavioural response threshold will have a larger associated range of impact. The Applicant states that based on modelling of the 135 dB threshold, it will not be feasible to install monopile foundations between March-June in the eastern part of the array according to their zoning plan. The Applicant considers that the revised zoning exercise shows that piling in the eastern part of the array between March-June may still be possible if using multileg (pin-piled) foundations. The MMO does not support this as the Applicant has not yet committed to using multileg foundations for the project.
- 4.3.3 The Applicant also states that the revised modelling presented here indicates the proposed zoning approach for piling during July in the western part of the array is also not feasible under either monopile or multileg piling scenarios. It should be noted that the MMO have not supported this zoning plan based on modelling of the inappropriate 141 dB threshold and have repeatedly asked the Applicant to demonstrate the feasibility of this approach when modelled using the more appropriate 135 dB threshold.
- 4.3.4 The Applicant's revised zoning exercise presents the areas of the Rampion 2 array in which it will not be possible to pile during the black sea bream spawning and nesting season (March to July, inclusive), based on modelling of 135 dB SELss threshold. The MMO notes that the figures provided in Appendix H do not fully represent the situation, as the UWN modelling carried out to determine the exclusion zones (i.e., the UWN contours depicting the full extent of the impact ranges for the various piling locations modelled in each of the scenarios), has not been provided. This is significant because the exclusion zones have been derived according to where these contours show an overlap with the Kingmere MCZ only and so the Applicant's revised zoning exercise does not show the full extent of the noise disturbance caused by their proposed piling activities during the sensitive black sea bream spawning and





nesting season (which would be indicated by the UWN contours). This represents a serious limitation of Figures H-1 – H-4 as they do not show how much of the surrounding area will also be affected by UWN associated with each scenario.

- 4.3.5 The MMO has consistently highlighted throughout previous advice that UWN from piling activities has the potential to not only disturb black sea bream whilst nesting, but also disrupt the migration of black sea bream potentially preventing them from reaching their spawning and nesting sites, as well as potentially causing physical/physiological responses in fish close to the sound source (such as temporary threshold shift (TTS) or injury) which may in turn affect their reproductive success. It should also be noted that there are black sea bream nesting sites present within the Rampion 2 export cable corridor (as recognised by the Applicant in the ES), and in the surrounding area outside of the Kingmere MCZ, which would be as affected by piling noise as black sea bream located within the MCZ. Regardless of the threshold that the modelling is based on, the Applicant's zoning plan offers little to no protection to black seabream nesting in the areas outside of the Kingmere MCZ or those nesting within the projects export cable corridor during the spawning and nesting season.
- 4.3.6 The MMO are thankful to see the Applicant present some modelling to demonstrate the feasibility of their zoning plan when modelled using a threshold appropriate for the purpose of modelling behavioural responses in fish sensitive to disturbance. It should be noted however that the MMO have never supported the Applicant's zoning approach based on modelling of the 141 dB threshold as an acceptable form mitigation for UWN impacts to black sea bream during their spawning and nesting season. It has been requested of the Applicant, numerous times that they should present UWN modelling for their worst-case piling scenarios, based on the recommended modelled threshold of 135 dB (as per Hawkins *et al.*, 2014) in order to appropriately and conservatively determine the likely range of impact from UWN to black sea bream.
- 4.3.7 Any potential acceptance of the Applicant's zoning plan mitigation would require them to demonstrate that the proposed approach to zoning would be achievable when modelled based on an appropriate behavioural threshold of the 135 dB SELss. The modelling in Appendix H represents the first instance where the Applicant has presented analyses of their zoning plan based on 135 dB threshold.
- 4.3.8 As previously stated by the MMO it was not acceptable for the month of July to be treated separately from March-June within the Applicant's proposed zoning plan for piling during the spawning and nesting season. Black sea bream are at their most sensitive when undertaking spawning and nest guarding, and as a result, the conservation objectives of the Kingmere MCZ are of heightened importance during the spawning and nesting period. There is clear evidence that black sea bream continue to spawn and maintain their nests into and during July, and therefore July must be considered as an equally important part of the spawning and nesting period, and not less important than the March-June period.
- 4.3.9 This was advised following the review of a technical note on piling noise relevant to black sea bream and an expert topic group (ETG) meeting on the same subject. During this ETG, the Applicant stated that they would not have sufficient reactivity during construction to undertake monitoring to determine the presence or absence of





black seabream nests during July, meaning they would not be able to determine whether the nests were abandoned or not and so could not confidently confirm that piling in July would have no significant effect on black seabream which may be present and nesting and which would contravene the conservation objectives of the Kingmere MCZ. Despite this, the Applicant chose to pursue a zoning plan which treats July as a less important period in the black sea bream spawning season, again, directly in contravention of the advice provided by subject specialists up to that point.

- 4.3.10 The piling exclusion modelling presented in Appendix H now demonstrates that, when an appropriate behavioural response threshold is modelled, the Applicant cannot realistically implement their proposed zoning approach to allow piling to be carried out during the black sea bream spawning season. As was outlined the MMO still have significant concerns with the Applicant's conclusions regarding the significance of noise effects on black sea bream. These include concerns relating to the ongoing disagreement on a suitable behavioural noise threshold for black sea bream, concerns and clarifications required regarding the UWN modelling presented in previously supplied documents and concerns about the suitability of the Applicant's in-situ UWN monitoring at Kingmere MCZ to inform ambient noise levels at the site. Many of these concerns have still not been adequately addressed or resolved.
- 4.3.11 The Applicant's revised zoning approach now shows that piling will not be possible in much of the Rampion 2 array during the black sea bream spawning season (a proposal which has not been supported at any point) without potentially significant effects on the black sea bream. Given this the MMO must maintain our recommendation that a seasonal piling restriction remains the only viable way to ensure there is no unacceptable disturbance to adult spawning and nesting black seabream during their spawning and nesting period (1<sup>st</sup> March to 31<sup>st</sup> July, inclusive).
- 4.3.12 The MMO would highlight to the ExA that the ongoing disagreement on a suitable behavioural noise threshold for black seabream remains at the core of this element of Rampion 2 discussions. The presence of breeding and nesting black sea bream within, and around, the Kingmere MCZ as well as within the project's export cable corridor, presents a situation which is very specific to these circumstances. It has become clear, based on our own understanding and through discussions with the Applicant, that there is currently no existing "perfect" academic study which neatly outlines the exact noise threshold at which black sea bream engaged in spawning and nest guarding will exhibit a behavioural response to impulsive underwater noise. In this way, there is no best possible evidence, and therefore a precautionary approach which applies the best available evidence should be adopted, as per the universal standard of Environmental Impact Assessment. This will invariably result in the need to examine evidence derived from a proxy species, ensuring that limitations of the studies being used are appropriately considered, to determine which is most applicable to the situation at hand. Hawkins *et al.*, (2014) or Kastelein *et al.* (2017) are candidates to be considered best available evidence in this situation, however there are significantly fewer limitations with the 135 dB threshold as proposed by Hawkins *et al.*, (2014), than there are for the 141 dB as proposed by Kastelein *et al.* (2017). A discussion of why the 135 dB threshold as per Hawkins *et al.*, (2014) represents more appropriate evidence to inform UWN assessments with respect to black seabream, than the 141 dB threshold as per Kastelein *et al.* (2017) is presented later in this section.



- 4.3.13 In their response to the ExA (FS 1.4), the Applicant asserts that “As informed by Popper *et al.*, (2014), behavioural disturbances are considered to be long term changes in behaviour and distribution, and should not include effects on single animals, or small changes in behaviour such as startle responses or minor movements”. This does not fully acknowledge the context and nuance of the situation at hand, in that noise disturbance during the spawning and nesting season has considerable potential to affect the reproductive success of the black sea bream population within the Kingmere MCZ. This would be a direct impingement on the second conservation objective of the Kingmere MCZ (as worded in The Kingmere Marine Conservation Zone Designation Order, 2013) which is that: the population (whether temporary or otherwise) of black sea bream occurring in the MCZ be free of disturbances likely to significantly affect the survival of its members or their ability to aggregate, nest, or lay, fertilise or guard eggs during breeding.
- 4.3.14 In this context, the Applicant’s interpretation of Popper *et al.*, (2014)’s definition of behavioural disturbances does not appropriately consider black sea bream as a receptor, particularly with respect to its associated conservation status. The Applicant also states that “Whilst the breeding habit differs between seabass and black seabream, the sensitivity of the fish to noise stimuli is physiologically derived, and therefore this proxy species as suggested by the Applicant is considered appropriate for the purposes of defining black bream noise response”. The MMO have acknowledged that seabass may be anatomically similar to black sea bream, however the fact remains that this species exhibits no demersal spawning or nest guarding behaviours in their ecology. This remains a significant limitation of using seabass to inform noise assessments for black seabream as we cannot be confident that the instinct of black seabream, to continue to spawn and guard their nests in the presence of significant noise disturbance will override their instinct to flee the disturbance. Therefore, the physiology and ecology of the fish cannot be treated separately. This conclusion also omits to acknowledge many of the concerns the MMO have around the 141 dB threshold as per Kastelein *et al.* (2017) which have been raised with the Applicant. The limitations of Kastelein *et al.*, particularly those relating to the experimental set up, create uncertainty as to how representative and applicable the study is to ‘real-world’ conditions. When coupled with the finding by Kastelein *et al.*, that smaller seabass (of a more comparable size to reproductively mature black sea bream) showed initial responses to the noise stimulus at a lower threshold (131 dB SELss) than larger fish, confidence in the utility of the 141 dB threshold is seriously undermined.
- 4.3.15 In comparison, the Hawkins *et al.*, (2014) study examined responses to noise stimuli in a natural environment by wild clupeid fish, which have a high hearing sensitivity. Basing the UWN assessments for Rampion 2 on the real-world field observations by Hawkins *et al.*, (2014) on schools of hearing-sensitive fish represents a suitably precautionary approach by ensuring that the noise levels received by black seabream within the Kingmere MCZ will be below detectable levels (i.e., if the sound levels are based on what is detectable by a fish with a higher hearing sensitivity, we can be confident that any noise emissions which reach the Kingmere MCZ will be below levels detectable by black seabream). As such, this represents a suitably precautionary approach, ensuring that sufficient provision is maintained throughout the assessment and increasing confidence that black seabream will not experience



disturbance during their most sensitive spawning season. This is why using the 135dB threshold for the purpose of modelling behavioural responses in black seabream, taken from Hawkins *et al.* (2014), is considered to be the best available scientific evidence.

#### 4.4 Information as to why the 141 dB re 1 mPa<sup>2</sup> s response threshold observed in seabass in the Kastelein *et al.* (2017) study is not supported by the MMO

4.4.1 One of the core issues relating to black seabream that is yet to be resolved is the ongoing lack of agreement on a suitable behavioural response threshold for black seabream. The Applicant proposed the use of a threshold of 141 dB SELs, based on a study by Kastelein *et al.* (2017) which observed an initial startle response in captive-bred adult European seabass that were exposed to piling playback under controlled laboratory conditions (in a pool exposed for 20 min). The study observed a 50% initial response threshold occurred at an SELs of 141 dB re 1 mPa<sup>2</sup> s for 44cm seabass. Smaller seabass (mean 31cm) responded to a lower SELs than the larger fish, with a 50% initial response threshold occurring at 131 dB re 1 mPa<sup>2</sup> s. We have outlined many times throughout the consultation process why we do not support the use of a 141 dB SELs threshold for black seabream but will restate our position here for completeness.

- i. The first concern is that whilst European seabass may be anatomically similar to black seabream, the fish used in the study were captive bred specimens and the experiments were conducted in tanks. In fact, Popper *et al.*, (2014) highlight this clearly, stating that “*animals in tanks or even in large enclosures show very different responses to behavioural stimuli than do wild animals (e.g., Oldfield, 2011). Studies on captive animals are suitable for gaining physiological information such as hearing sensitivity, but not for understanding how a wild animal will respond behaviourally to a stimulus*”. We must therefore consider whether wild black sea bream might respond differently to captive bred seabass.
- ii. The next concern is that the European seabass were not engaged in spawning or nesting guarding behaviour. In fact, they are broadcast spawners so are not reliant on particular seabed habitats for reproduction, so there is also a risk regarding how wild black sea bream might respond if they were exposed to increased noise disturbance during their breeding season. Abandonment of nests by male black sea bream will result in nests being untended, causing a build-up of sediments, algae etc and smothering of eggs in their developmental stage, as well as predation of eggs by other fish and invertebrates. Importantly, nest abandonment by black seabream will have implications for the conservation objectives of the Kingmere MCZ.
- iii. Further, to the two points raised above, the lough in which the Hawkins *et al.*, (2014) study was carried out represents a much larger body of water than the experimental tanks used by Kastelein *et al.* (2017). The study by Kastelein *et al.* (2017) placed Schools of four individual seabass in a net enclosure (4.0 m long, 1.75 m wide and 2 m high in the water) within a larger rectangular tank (7.0 m long, 4.0 m wide; water depth 2.0 m) to be observed. The wild sprat in Hawkins *et al.*, (2014) study were not spatially confined in the same way that Kastelein’s





seabass were meaning they were likely more able to respond to the noise stimulus in a more authentic and natural way.

- iv. The Applicant has continuously neglected to take into consideration that the study by Kastelein *et al.* (2017), found a 50% initial response threshold occurred at an SELss of 131 dB re 1 mPa<sup>2</sup> s for 31 cm fish, and 141 dB re 1 mPa<sup>2</sup> s for 44 cm fish; thus, the small fish reacted to lower SELss than the large fish. Black seabream attain reproductive maturity at 30cm, so noting that the smaller seabass of 31cm showed initial responses at a threshold of SELss of 131 dB re 1 mPa<sup>2</sup> s, this (131dB) threshold is arguably more suitable. In addition, adult black seabream grow to a size of 35-40cm, i.e. smaller than the 44cm of the adult European seabass that responded at 141 dB re 1 mPa<sup>2</sup> s. In summary, the influence of the size of fish found by Kastelein *et al.* (2017) cannot be discounted by the Applicant.
- v. The Applicant has maintained that there is no evidence to support the use of 135 dB SELss other than that it is lower than 141 dB SELss. However, as previously highlighted, the 135 dB threshold is taken from a peer-reviewed paper (Hawkins *et al.*, 2014) which presents findings from a field study involving piling playback with wild sprat which are more sensitive to UWN than black seabream. For these reasons, the 135 dB can be considered precautionary, but less precautionary than if we were to use the threshold of 131 dB which was found in the study by Kastelein *et al.* (2017) for seabass that were of the same size as reproductively mature black seabream (the threshold of 131 dB was immediately discounted by the Applicant). Given the limitations of the studies outlined above, but acknowledging that 131 dB is a very low threshold, in line with our previous advice, we maintain that the threshold of 135 dB SELss, as per Hawkins *et al.*, (2014), represents the best available evidence to inform a precautionary approach to modelling. Although still making inferences from a proxy species, the 135 dB threshold was based on a study of wild sprats i.e., clupeids with greater hearing capability and higher sensitivity to UWN than black seabream and seabass, and as a result this threshold is already considered sufficiently conservative for the purposes of modelling UWN. We have also previously highlighted that our recommendation for using a threshold of 135 dB represents a workable compromise between 141 dB and 131 dB, in addition to being based on a fish of similar hearing capability and ecology, which has a higher hearing sensitivity.
- vi. The Applicant has argued that as the study by Hawkins *et al.*, (2014) took place in a natural sea lough, Lough Hyne, which the authors describe as 'quiet', and therefore the conditions for the study do not reflect the ambient noise levels that typically occur around Kingmere MCZ to which black seabream will be exposed, and to some extent habituated. In their response to the ExA (FS 1.4), the Applicant states that the location of the Hawkins *et al.*, (2014) study in a quiet natural lough means that the study is not applicable to a much noisier area such as the English Channel. However, the Applicant has not fully acknowledged a key limitation of the Kastelein *et al.*, (2017) study, which is that their experiments on seabass were carried out in an environment which was artificially controlled to be as quiet as possible. The authors of the study state that the conditions the fish were kept in were very quiet, with the tanks and water systems having no pumps, and underwater noise levels were kept below those occurring during Sea State 0 (Knudsen *et al.*, 1948). The research pool was also made as quiet as possible, by





using the filter unit with a low noise “whisper” pump and having only one researcher present whilst the experiment was running (remaining “*seated quietly in the research cabin. The only actions she performed were starting a session by tapping the keypads of the laptops*”). This speaks to the efforts that Kastelein *et al.*, made to ensure that background noise levels were low so as not to influence the results of the trial. This is arguably less representative of the noisy the English Channel the lough in which Hawkins *et al.*, (2014) conducted their study, which provided an environment where some level of natural ambient background noise was likely to be present.

- vii. The recordings of pile driving sounds used in the piling playback by Kastelein *et al.*, (2017) were recorded at 800 m from a 4.2 m diameter pile being driven for the Dutch offshore wind farm ‘Egmond aan Zee’ in the North Sea. However, for Rampion Extension, the Applicant intends to use monopiles of up to 13.5m (three times larger than that used for Egmond aan Zee), with a maximum hammer energy of 4,400kJ. Whether the piling playback scenario used in the study is suitable for comparison to the scenario for piling at Rampion extension has not been discussed or acknowledged as a further limitation of the study.

## 5. MMO Comments on Applicant’s Submissions received at Deadline 3

5.1. The MMO has consulted with (Cefas) and reviewed the following revised documents submitted at Deadline 3:

- I. 7.12 Outline Scour Protection and Cable Protection Plan Rev B (REP3-039)
- II. 7.13 Outline Marine Written Scheme of Investigation Rev B (REP3-041)
- III. 7.16 Outline Offshore Operations and Maintenance Plan Rev B (REP3-042)
- IV. 7.17 In Principle Sensitive Features Mitigation Plan Rev C (REP3-046)
- V. 7.18 In Principle Offshore Monitoring Plan Rev B (REP3-047)
- VI. 8.54 Applicant's Response to Examining Authority's First Written Questions Rev A (REP3-050)
- VII. 8.55 Applicant's Response to Deadline 2 Submissions Rev A (REP3-051)
- VIII. 8.63 Applicant's Responses to Historic England Deadline 1 Submission on Marine Archaeology Rev A (REP3-056)
- IX. EN010117-001173-Written Questions FINAL

5.2. In addition to the above documents, the MMO has also consulted on the following document submitted at Deadline 2

- I. 8.49 Applicant's Response to Prescribed Consultees' Written Representation Rev A (REP2-026)

### **In Principle Sensitive Features Mitigation Plan Rev C (REP3-046)**

#### 5.3 Benthic comments



- 5.3.1 The In Principle Sensitive Features Mitigation Plan (IPSFM) refers to two Natural Environment Research Council (NERC) Biodiversity Action plan (BAP) Habitats only ('*Sabellaria spinulosa* with kelp and red seaweeds on sand-influenced infralittoral rock (A3.215)' and 'Piddocks with a sparse associated fauna in sublittoral very soft chalk or clay (A4.231)) that have been considered for mitigation. However, the Environmental Statement (ES) (Chapter 9: Benthic, subtidal and intertidal ecology) also identified *Sabellaria spinulosa* on stable circalittoral mixed sediment (A5.611) as a key biotype recorded either from site specific monitoring or habitat modelling.
- 5.3.2 The MMO would like to see this habitat considered for mitigation/micro-siting. The MMO refers the applicant to Paragraphs 4.2.1 & 4.2.2 of our Deadline 3 response (REP3-076) regarding considerations for confirming the presence of these habitats.
- 5.3.3 On page 7 of the IPSFM, additional mitigation measures have been included. Mitigation measure C-283 refers to the use of gravel bags to protect the vessel if needing to ground to lay cables in the near shore as an embedded environmental measure.
- 5.3.4 It also states that the gravel bags will be removed prior to the completion of construction, where practicable. This measure does not appear to mitigate for any environmental impacts, and if the gravel bags are not recovered, will cause additional impact to the habitats. Please could the Applicant provide more information on this proposed mitigation measure?
- 5.3.5 In addition, mitigation measure C-289 refers to the use of secondary protection material but does not explain further what this is. Please could the Applicant provide more information?

#### 5.4 Fisheries comments

- 5.4.1 As raised in the MMO's Deadline 3 response (Paragraph 4.2.18 - REP3-076) the MMO continue to question whether monitoring of the first four mono and multileg piled foundations will be adequate to validate the numerous predictions made in the ES in relation to UWN noise, especially given the various piling scenarios proposed that include sequential piling, simultaneous piling, as well as the following noise abatement measures; Double Big Bubble DBBC ~ 9 to 12dB reduction in source level; and PULSE hammer (by IHC IQIP) ~ 6 to 10dB reduction in source level.
- 5.4.2 The In Principle Sensitive Features Mitigation Plan sets out the applicant's proposed mitigation for reducing the impacts of underwater noise from piling on spawning and nesting black sea bream, and the impacts to sensitive features within the Export Cable Corridor (ECC) area and designated features of Kingmere MCZ, the Beachy Head East and West MCZs and Selsey Bill and the Hounds MCZ.
- 5.4.3 The Applicant is proposing to implement a spatial zoning strategy to enable them to carry out piling during the black sea bream spawning and nesting season, but which offers sufficient protection to spawning and nesting black sea bream. The spatial zoning plan presented is based on noise modelling that uses a 141 dB Sound Exposure Levels (single strike) SELss threshold for behavioural responses in black



sea bream. As per the MMOs previous comments (Paragraph 4.6.4 - REP3-076) there is still ongoing disagreement on a suitable behavioural noise threshold for black sea bream.

5.4.4 The MMO have consistently stated that we do not support the use of the 141 dB SELss threshold for the purpose of modelling behavioural responses in black sea bream. As no new evidence or data has been presented in this the MMO maintain our position that the noise modelling for behavioural responses in black sea bream should be based on 135 dB SELss (as per Hawkins *et al.* 2014).

5.4.5 As previously highlighted, this recommendation represents a compromise between 141 dB and 131 dB, which is arguably a more suitable threshold. The acknowledge that 131 dB is a very low threshold given the limitations of the study, and maintain threshold of 135 dB SELss, as per Hawkins *et al.*, (2014), should be used as a precautionary approach.

5.4.6 The MMO do not support the Applicant's spatially zoned approach to piling as the modelling is based on a threshold that we do not consider to be appropriate. The MMO would expect to see modelling presented in mapped form, based on the 135 dB SELss threshold, to determine whether a spatial zoning approach is feasible. Until such time that this information is presented, the MMO maintain our recommendation of a complete seasonal piling restriction in order to limit disturbance to adult spawning and nesting black sea bream during their spawning and nesting period (1st March to 31st July, inclusive).

5.4.7 The Applicant has outlined a series of mitigation measures to limit impacts to sensitive features within the ECC area and designated features of Kingmere MCZ, the Beachy Head East and West MCZs and Selsey Bill and the Hounds MCZ. These include:

- i. Cable routing design and micro siting of the cable to avoid subtidal chalk and reef features, peat and clay exposures and areas considered to potentially support black sea bream nesting,
- ii. The implementation of a working separation distance (buffer) will be maintained wherever possible from sensitive features, notably black sea bream nesting areas,
- iii. Cable routeing design to target areas of seabed that enable maximising the potential for cables to be buried, thus providing for seabed habitat recovery in sediment areas and reducing the need for secondary protection,
- iv. Adoption of specialist offshore export cable laying, and installation techniques will minimise the direct and indirect (secondary) seabed disturbance footprint,
- v. A seasonal restriction for Offshore Export Cable Corridor installation activities during the black sea bream breeding period (March-July) to avoid any effects to black sea bream nesting in or near Kingmere MCZ.





- 5.4.8 The MMO support the above listed proposed mitigation measures. The MMO recommend that the commitment in point v. (seasonal restriction for Offshore Export Cable Corridor) is conditioned in the deemed marine licence (DML) with the dates of the restriction conditioned as the 1st of March – 31st July, inclusive.
- 5.4.9 This condition should be made applicable throughout the licence term of the project, i.e. for all years of construction, operation, and post-construction. It should be made clear that ECC maintenance activities also have the potential to disturb black sea bream nesting areas and so, as standard, no works should be carried out within the ECC during the black sea bream spawning and nesting season without permission being sought from the MMO, in consultation with Cefas Fisheries Advisors and Natural England.
- 5.4.10 The MMO do not agree with the proposal to implement a spatial zoning strategy which would allow the Applicant to carry out piling during the black sea bream spawning and nesting season. We have requested modelling based on a 135 dB SELss threshold in our advice for several previous consultations, but this still has not been presented. Without suitable robust modelling to demonstrate the effectiveness of a spatial zoning strategy for piling, we maintain our recommendation of a complete seasonal piling restriction in order to limit disturbance to adult spawning and nesting black sea bream during their spawning and nesting period (1st March to 31st July, inclusive).

## 5.5 Underwater Noise comments

- 5.5.1 The MMO acknowledges that the Applicant has not yet committed to a particular noise abatement system and therefore specific design for monitoring mitigation outcomes has not been detailed. As stated in our previous response (REP2-035 – Paragraph 7.1.20) in order to determine the efficacy of noise abatement systems at Rampion 2, evidence will be required in the form of measurements of piling noise with and without noise abatement. As it is understood that the black sea bream spawning (nesting) season is March to July, the MMO recommends that measurements of non-abated piling is obtained outside of this window.
- 5.5.2 The most recent revision of this plan (Revision C - REP3-046) does not contain any significant updates from the perspective of underwater noise. Detailed comments on the In Principle Sensitive Features Mitigation Plan were provided in Section 5.7 of the MMO Section 56 Response and most recently in our Deadline 3 submission (REP3-076).
- 5.5.3 The MMO restates its previous advice that the spawning period for black sea bream is understood to be March–July inclusive and as such July should not be treated any differently with regards to any proposed mitigation. The MMO maintains the opinion that a seasonal piling restriction of March 1<sup>st</sup> to July 31<sup>st</sup>, inclusive is required to prevent disturbance from UWN to nesting and spawning black sea bream.





- 5.5.4 While the MMO acknowledges that the precise mitigation measures to be adopted are subject to the final design and construction methods for Rampion 2, it is important that the applicant commits to using noise abatement technologies which achieve the greatest amount of noise reduction.
- 5.5.5 In the absence of sufficient evidence to support an alternative behavioural noise threshold for fish species the MMO continues to support 135 dB SELss (single strike sound exposure level) behavioural threshold as presented in Hawkins *et al.* (2014).
- 5.5.6 The MMO does not support the applicant's proposed threshold of 141 dB SELss based on Kastelein *et al.* (2017) as this study identified startle response at 131 dB SELss for seabass that were of the same size as reproductively mature black sea bream. The MMO is aware that discussions on this topic are ongoing, and a threshold still needs to be agreed between all interested parties (the Applicant, MMO, Cefas and Natural England).

## Offshore In Principle Monitoring Plan Rev B (REP3-047)

### 5.6 Benthic comments

- 5.6.1 Changes made to the Offshore In Principle Monitoring Plan (OIPMP) do not address previous Benthic and Coastal Processes comments concerning offshore monitoring raised by the MMO in Paragraphs 4.2.1 - 4.2.8 of the MMO's Deadline 3 response (REP3-076). The MMO is aware however, that these comments were made in relation to the In Principle Sensitive Features Mitigation Plan Revision B (REP1-012) not the specific document in question and that these comments were submitted at the same time as the revised document (Deadline 3) so the applicant would have not had time to amend their submissions.
- 5.6.2 In any case the MMO would refer the applicant to Paragraphs 4.2.1 - 4.2.8 of the MMO's Deadline 3 response (REP3-076) for further advice on Benthic and Coastal processing monitoring which are relevant to the Offshore In Principle Monitoring Plan.
- 5.6.3 In addition to comments made previously by the MMO and Cefas in our last Written Representation (REP3-076 – Paragraphs 4.2.1 - 4.2.8) and specifically in relation to *Sabellaria spinulosa* reef monitoring and where the habitats are coarse/mixed, the MMO advise the use of drop-down video in combination with acoustic methods in areas of suspected reef due to the acoustic data not always showing clear reef signatures. The MMO are aware that acoustic surveys are undertaken first and reviewed for possible signatures and where no signatures are observed there will be no further survey using drop down video. However, due to the difficulties with distinguishing reef from surrounding sediments in acoustic data in some cases (see Jenkins *et al.*, 2018), we would advise using both methods when monitoring this feature. The MMO note that the only *Sabellaria* habitat being mitigated for is '*Sabellaria spinulosa* with kelp and red seaweeds on sand-influenced infralittoral rock (A3.215)'.



## 5.7 Fisheries

5.7.1 Table 4-3 of the OIPMP outlines the In-Principle monitoring proposed for benthic subtidal and intertidal ecology, which includes a pre-construction survey to identify chalk habitat, stony reef, and potential *Sabellaria spinulosa* reef using a sidescan or multi-beam echo sounder. This will be followed by a drop-down camera or video survey to confirm the presence and extent of the chalk and reef habitats identified. A single post-construction survey using the same methods as the pre-construction survey will be conducted to check on the post-construction condition of these chalk and reef habitats. Given that there are notable areas of chalk and stony reef habitats in the Rampion ECC which provide black sea bream nesting habitat, the MMO support the proposal for pre- and post-construction monitoring.

## 5.8 Underwater Noise comments

- 5.8.1 The MMO supports the applicant's statement that noise measurements will be made in line with the Good Practice Guide No.133: Underwater Noise Measurement (National Physical Laboratory, 2014).
- 5.8.2 The MMO advises that it would be important to compare the existing noise propagation modelling presented in the Environmental Statement and any subsequent noise assessment to the measured data generated during the proposed field monitoring.
- 5.8.3 A direct comparison of how field measured noise spectra for pile driving compare with predictions should be the primary focus of the final presented Offshore In Principle Monitoring Plan.
- 5.8.4 The MMO acknowledges that a Marine Mammal Mitigation Protocol (MMMP) will be produced in accordance with relevant guidance to minimise the risk of injury or mortality to marine mammals during the construction of Rampion 2. A Final Piling MMMP will be submitted at least six months prior to construction which will be in accordance with the measures in the Draft Piling Marine Mammal Mitigation Protocol (APP-236). The MMO refers the applicant to previous comments made in relation to the suitability of proposed noise mitigation measure for marine mammals provided in Sections and Paragraphs 4.8.1 – 4.8.9 & 4.11.4 – 4.11.8 of our Deadline 3 response (REP3-076).

## **Outline Offshore Operations and Maintenance Plan Rev B (REP3-042)**

- 5.8.5 The MMO notes in section 1.2.3 that the applicant now states that "A final Outline Offshore Operations and Maintenance Plan (OOMP) is required to be submitted to MMO, no more than 3 months following the completion of the authorised scheme, in accordance with Condition 3 of the dML, Schedules 11 and 12 of the draft DCO Rev C".
- 5.8.6 The MMO notes that the previous version of this document stated that the submission of a OOMP to the MMO was a requirement of Condition 11 of Schedule 11 and 12 of the DCO. However, the MMO acknowledges that the OOMP is now conditioned in 'Maintenance of the authorised scheme' – Condition 3 (1).



The MMO refers to our Relevant Representation (RR-219) and Deadline 2 response (REP2-035) and still hopes that the timeline for the OOMP may change to a four or six month review period prior to operation, as opposed to the current timeline of '3 months following the completion of the authorised scheme.

- 5.8.7 The MMO notes that there are still outstanding issues pertaining to the wording of Condition 3(2) and 3(5) these are covered in detail in Sections 1 & 2 of this response.
- 5.8.8 The MMO notes that section 1.2.3 that the word (Construction) has been missed from the statement "completion of the authorised scheme" as written in the OOMP. The correct wording should be "completion of *construction* of the authorised scheme" as written in Condition 3 of the dML, Schedules 11 and 12 of the draft DCO Rev C. This sentence should be amended so that it matches the wording provided in the DCO and to avoid any confusion.
- 5.8.9 The MMO notes that section 1.2 has been reworded to remove the previous list of examples of what may constitute operation and maintenance activities to instead bring the document in line with the interpretation and definition of "maintain" as defined in the draft DCO Rev C (REP2-003).
- 5.8.10 The MMO thanks the applicant for amending Appendix A to include expanded definitions of new cable protection and additional scour protection as requested in our Deadline 2 response.
- 5.8.11 The MMO notes that comments provided in point 5.6.2 of our Relevant Representation (RR-219) relating to the status of operations and maintenance activities which may require additional licences or consultation have not been addressed.
- 5.8.12 Due to the need to ensure that the MMO meets the OSPAR guidelines with regard to notification of chemicals those activities that involve the need for additional or amendments of chemicals should have the notification status to the MMO changed to yes, such as, Generator replacement, Scheduled general maintenance, Painting and cleaning and Grout and corrosion works.
- 5.8.13 The MMO notes that point 5.6.5 of our Relevant Representations relating to the inclusion in Table B-1 of the total volume anticipated for disposal as a result of drilled arisings trenching burying and ground clearance has not been addressed.

## **Applicant's Response to Examining Authority's First Written Questions Rev A (REP3-051)**

### 5.9 Benthic comments

- 5.9.1 The MMO thanks the applicant for responding to questions BP 1.2 & BP 1.3 of the Examining Authority's Written Questions and considers that these matters satisfactorily addressed.





## 5.10 Fisheries comments

- 5.10.1 In reference to FS.120 of the Examining Authority's Written Questions and requests for information (document reviewed in point 10), the response states that the Applicant has submitted further information on sandeel habitat which follows the MarineSpace (2013) methodology. The Applicant summarises that based on available evidence the Proposed Development would not be considered a key area for sandeel spawning activity. The MMO have not reviewed a 'heat' map showing areas of suitable sandeel habitat that follows the MarineSpace (2013) method. In the latest revision of the ES, the Applicant completed a sandeel potential habitat suitability assessment using particle size analysis (PSA) data from site-specific sediment grab samples that were collected from within and around the array (See Figure 8.9 of the ES Volume 3, Chapter 8: Fish and shellfish – Figures, February 2024, Revision B). The sediment samples were classified, based on their composition, as 'preferred', 'marginal' or 'unsuitable' for sandeel habitat, based on the method described by Latto *et al.*, (2013). The PSA grab locations were presented in mapped form in Figure 8.9 of the ES, alongside broadscale EMODnet seabed substrate data. Whilst the data used in Figure 8.9 are appropriate for use in determining sandeel habitat suitability, the resulting Figure 8.9 does not result in a MarineSpace style 'heat' map.
- 5.10.2 The MarineSpace (2013) method uses a suite of data including PSA data, British Geological Survey (BGS) data, Regional Seabed Monitoring Plan (RSMP) data as well as fishing fleet data and scientific publications, to determine potential sandeel habitat and is methodically layered to generate a single 'heat' map output. Simply put, areas of higher 'heat' are representative of areas with higher potential as sandeel habitat. Areas of 'heat' are assigned a score based on confidence of the data. The PSA data shown in Figure 8.9 indicate that the majority of the sediments in the study area are comprised of 'suitable / marginal' habitat, as opposed to 'prime' or 'sub-prime' preferred habitats. The accompanying EMODnet data also indicate that the broadscale sediments are predominantly coarse sediments, which would be considered less favourable as sandeel habitat, with some smaller areas of sand that are considered suitable habitat. These data correlate well with the existing understanding that the Project area is located within an area of sandeel habitat which is a low intensity spawning ground (as per Ellis *et al.*, 2012) which covers a large area along the south coast of England.
- 5.10.3 Notwithstanding the MMOs comments above, whilst the Applicant has not followed the MarineSpace (2013) method to provide a sandeel habitat 'heat' map, the data presented in the ES are adequate for the purpose of assessing potential impacts to sandeel from the construction and operation of Rampion 2. The Applicant's assessment for all impacts and effects to sandeel resulted in 'Minor Adverse' significance, which has been assessed as Not Significant against the EIA terms. Given the wider area of sandeel habitat available in this region and based on the knowledge that the project area is not considered to be of local or regional importance to sandeel, nor is it a high intensity spawning ground, the MMO are satisfied with the Applicant's conclusion.





## 5.11 Underwater Noise

- 5.11.1 The MMO acknowledges the applicant's consideration of noise abatement systems and options through the production of Appendix H FS: Noise Thresholds for Black Seabream, and Appendix I MM: Noise Abatement Systems (REP3-051). The MMO notes that it is the applicant's intention to use a combination of DBB) and reduced intensity hammer technology such as PULSE or MNRU hammer. The MMO understands that the methods presented are indicative of the types of system to be implemented however, the precise equipment to be used will be selected based on the most appropriate equipment available at the time.
- 5.11.2 The MMO notes the applicant's statement that the primary objective of the chosen mitigation should be to achieve the greatest noise reduction levels in respect of an agreed threshold, rather than specify precise equipment at this stage.
- 5.11.3 The MMO acknowledges the additional modelling provided is based on the proposed mitigation measures achieving a predicted 20dB reduction in noise as opposed to the 22dB and 25dB reductions presented in the In Principle Sensitive Features Mitigation Plan and that this is based on the available information on these noise abatement systems from the Institute of Technical and Applied Physics (ITAP).
- 5.11.4 The MMO advises that the applicant needs to provide evidence to support the estimated dB reductions for each proposed noise abatement systems. This evidence also needs to consider noise frequency not just dB level. The efficacy of a noise abatement system to reduce the risk of impact depends on the frequency range at which sound energy is reduced and on the target species, as each species is sensitive to a certain frequency range.
- 5.11.5 In addition to these comments' further responses to the Applicant's Response to Examining Authority's First Written Questions are provided in the table below:



Table 2 – MMO Response to Applicants response to Examining Authority’s First Written Questions

Reference	Question To:	Applicant response	MMO response
FS 1.3	<p>The Applicant.</p> <p><i>Noise Abatement Measures</i>                      The Applicant has stated that it is undertaking additional work to provide a comparison of the environmental conditions at the Proposed Development with other projects where Noise Abatement Systems have been deployed, and this will be submitted to the Examination in due course [REP1-107 Page 257]. Explain what information is likely to be received and when. This should include a minimum decibel level reduction expected for each noise abatement method for the Rampion 2 site and offshore environment.</p>	<p>The Applicant will submit additional information to the Examination at Deadline 4. This will include a review of the commercially available noise abatement technology, referenced to publicly available information on the effectiveness of known applications in other markets including Germany. Information will also be provided on the emerging policy being developed by the Department for Environment, Food and Rural Affairs (Defra) in order to reduce environmental impact from subsea noise whilst enabling projects to still be delivered without onerous seasonal restrictions which would otherwise make them impractical to construct.</p>	<p>The MMO acknowledge the Applicant’s comment and will await further information to be submitted at Deadline 4.</p>
FS 1.4	<p>The Applicant                      Natural England                      MMO</p> <p><i>Noise Thresholds for Black Seabream</i>                      Natural England does not support the use of 141 decibels (dB) re 1 micropascal (uPa) Sound Exposure Level – Single Strike (SELss) as a threshold for black seabream behavioural disturbance and does not agree that the threshold is highly precautionary [REP1-059a, Point E34]. Explain whether there are any other species that could be used as a proxy for black seabream in these circumstances that could be agreed on by all parties. If so,</p>	<p>A thorough review of available literature and data was undertaken by the Applicant, and, having identified no species-specific information for black seabream, the literature review was continued to identify a suitable proxy species to further evidence the likely responses of black seabream to noise emissions.</p> <p>Seabass were identified as a suitable proxy species due to being morphologically similar to black seabream, at an equivalent life stage to the nesting black seabream. Red seabream were also identified as being a suitable proxy species, due to being in the same family as black seabream (Sparidae), and being in the same hearing category, (categories as defined by Popper et al. (2014)).</p>	<p>It was noted by the MMO that Seabass are anatomically and physiologically similar to seabream, though they are not in the same family or genus. There is a paucity of data for species that are more closely related. Given that there is peer-review scientific literature for noise exposure on seabass, it does seem an appropriate proxy species in this regard. However, it was noted that the species do not have the same breeding behaviours, and this combined with any physiological and behavioural effects from exposure to piling noise is of concern.</p> <p>For clarity, please note that the MMO are not suggesting sprat as a suitable proxy for seabream per se. The MMO agree with the Applicant that</p>



this should be put forward to the Examination at Deadline 3.

Sprat are suggested as a suitable proxy by Natural England and the Marine Management Organisation (MMO), based on a study by Hawkins et al. (2014), which recorded initial responses of the species at 135 dB SELss. The Applicant does not support the use of this species as proxy, as sprat have a greater hearing capability and higher sensitivity (Group 4 receptor (Popper et al., 2014)) to underwater noise than black seabream (Group 3 receptor), and are therefore expected to have a much increased reaction to any noise stimulus. In addition, the threshold (135 dB SELss) is based on a startle response of sprat which are not involved in any particular activity (i.e. not spawning), and located in quiet loch. It is therefore not considered appropriate to use this threshold within a much noisier area such as the English Channel (which is subject to high levels of anthropogenic activity and consequently noise) as the fish within this area would reasonably be expected to be accustomed to higher levels of noise and would thus have a correspondingly lower sensitivity to disturbance.

The MMO have highlighted a study by Kastelein et al. (2017), which reported a 50% initial startle response (sudden short-lived changes in swimming speed) which occurred at an SELss of 131 dB re 1 mPa<sup>2</sup> s for 31 cm seabass and 141 dB re 1 mPa<sup>2</sup> s for 44 cm seabass. Of these thresholds, the MMO have suggested the application of the 131 dB re 1 mPa<sup>2</sup> s threshold to inform the impact assessment on nesting black seabream. The Applicant however, is confident that a threshold of 141 dB re 1 mPa<sup>2</sup> (as based on seabass as proxy) is more appropriate. As reported by Kastelein et al. (2017), the thresholds are based on startle responses of seabass, which could be a brief change in swimming speed, direction, or body posture, in at least one of a group of four fish, with a very limited time duration, as opposed to a full abandonment of the ensonified area. Furthermore, there was no evidence of any consistent sustained response to sound exposure by the study animals (changes in school cohesion, swimming depth, and speed) at levels up to 166 dB SELss.

sprat have a greater hearing capability and higher sensitivity to underwater noise than black sea bream. The reason a 135 dB SELss threshold has been recommended is on the basis that the Hawkins *et al.* (2014) study is (a) of relevance to pile driving, and (b) it is one of the few known (peer-reviewed) studies undertaken in the wild (rather than in a laboratory setting).

The MMO acknowledge that sprat is a hearing specialist, and therefore, the 135 dB re 1  $\mu\text{Pa}^2\text{s}$  threshold is likely to be conservative for species that are not 'hearing specialists' or do not possess a specialised connection between the swim bladder and inner ear. Any behavioural threshold must be appropriately caveated, and caveats must also be applied to the 135 dB SELss threshold.



		<p>As informed by Popper et al., (2014), behavioural disturbances are considered to be long term changes in behaviour and distribution, and should not include effects on single animals, or small changes in behaviour such as startle responses or minor movements. The Applicant therefore suggests the use of the disturbance threshold of 141 dB SELs (based on 44 cm seabass, as reported in Kastelien et al. (2017)) as suitably precautionary for an impact assessment on nesting black seabream. This is as the observed effects from underwater noise from pile driving on seabass were so minor (no sustained responses observed), there are unlikely to be any adverse effects on their ecology (such as sustained disturbance to nesting behaviours). Therefore, this noise level is not considered to have any potential to trigger a significant effect on the black bream population within the Marine Conservation Zone (MCZ) and nor is it even likely to have an individual effect on breeding success. As the Applicant has proposed, the 141dB SELs limit, as based on seabass as a proxy, would be the maximum at the boundary of the Kingmere MCZ, and only at the maximum blow energy, no feature of the MCZ would even be expected to be exposed to this level of impact and therefore it remains conservative and sufficient to ensure no significant effects to the black bream feature of the MCZ.</p> <p>The Applicant would be happy to consider an alternative proxy but is not aware (following the comprehensive literature review) of an alternative proxy species (other than those already presented) which offers the same level of similarity to black seabream, i.e. same physiology and hearing capability (which comprise the critical attributes). Whilst the breeding habit differs between seabass and black seabream, the sensitivity of the fish to noise stimuli is physiologically derived, and therefore this proxy species as suggested by the Applicant is considered appropriate for the purposes of defining black bream noise response.</p>	
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<p>FS 1.5</p>	<p>The Applicant</p> <p><i>Noise Thresholds for Black Seabream</i></p> <p>The MMO suggests a threshold of 135db SELss is used (as per Hawkins et al, 2014) for the reasons set out in section 7.1.6 [REP2-035]. Please respond to the MMO comments in this section of their submission. Furthermore, if this threshold was adopted by the Applicant, please set out how that would affect mitigation such as zoning of piling, using diagrams where possible.</p>	<p>The Applicant directs the Examining Authority to Appendix H FS: Noise Thresholds for Black Seabream (of this document) where this is addressed.</p>	<p>The MMO acknowledges the Applicants comment. MMO comments on Appendix H FS: Noise Thresholds for Black Seabream (REP3-051) are provided above within the main body of this section of underwater noise comments.</p>
<p>FS 1.9</p>	<p>Natural England MMO</p> <p><i>Piling Noise – Background Noise</i></p> <p>The Applicant has stated that as the presence of the noise at the threshold level would be limited in time and location, then for most of the time and place within the Kingmere MCZ, the noise would not be far in excess of noise that is already present at this site [REP2-026, Point E13, Page 102]. Provide a response on whether this is an agreed matter.</p>	<p>The Applicant directs the Examining Authority to their response to Point E15, in Deadline 2 Submission – 8.49 Category 8: Examination Documents – Applicant's Response to Prescribed Consultees' Written Representations [REP2-026].</p>	<p>The MMO restates that an appropriate threshold still needs to be agreed between all parties.</p> <p>MMO comments on background noise levels are addressed in reference point 2.6.171 of our response to Applicant's Response to Deadline 2 Submissions Rev A (REP3-051) provided earlier in this section.</p>
<p>FS 1.15</p>	<p>The Applicant</p> <p><i>Noise Abatement Zoning</i></p> <p>The MMO has recommended that a conservative approach to include noise abatement across the entire site rather than using a zoning approach should be adopted [REP2- 035, Paragraph 1.17.2]. Provide a response on this approach.</p>	<p>As presented in the In Principle Sensitive Features Mitigation Plan [REP1-012] (updated at Deadline 3), through the implementation of noise abatement measures, and seasonal restrictions and zoning, the Applicant is confident that the conservation objectives of the Kingmere MCZ will not be hindered due to the measures of precaution. The Applicant has also committed to the use of at least one offshore piling noise mitigation technology for the duration of the construction phase (C-265). This measure is secured in Condition 11(1)(j) of the dMLs Schedules 11 and 12 of the Draft Development Consent Order [REP2-002] (updated at Deadline 3).</p>	<p>The MMO acknowledges the Applicant's comment. The MMO notes that any noise abatement measures and mitigation secured is yet to be agreed by all interested parties.</p>



		Please also refer to response to the Examining Authority's Written Question FS 1.6, which explains in detail why the Applicant considers the proposed approach to be suitably precautionary.	
FS 1.24	<p>MMO</p> <p><i>Mitigated Noise Thresholds for Herring</i></p> <p>The Applicant has presented the unmitigated behavioural impact ranges on herring, and the reduced impact contours from the minimal noise abatement offered by the mitigation proposed (-6dB reduction from the use of a low noise hammer) during the Downs herring spawning period relative to the spawning ground [REP1-020, Paragraph 4.1.12, Figures 4-3 and 4-4]. Confirm whether there would be no behavioural effects on herring through piling noise if mitigation is used. Explain whether the 6db noise reduction used by the Applicant appropriate for such an exercise.</p>		<p>The MMO refers the applicant to Paragraph 4.5.9 of our Deadline 3 response (REP3-076) which addressed the significant overlap with high intensity spawning for the East piling location represented in Figure 4-3 and Figure 4-4.</p> <p>The MMO is of the opinion that basing a modelling exercise on the minimal noise abatement offered is a suitably precautionary and appropriate approach.</p>
FS 1.25	<p>MMO</p> <p><i>Behavioural Effects on Herring Spawning</i></p> <p>In a worst-case scenario, explain the potential behavioural effects of piling noise on herring whilst spawning.</p>		<p>The MMO would highlight that behavioural effects are particularly difficult to assess, since they are highly dependent on a wide range of factors including behavioural context. For example, factors include the loudness and frequency of the sound, the age and sex of the fish, time of day. Furthermore, a fish that is engaged in a particular activity (such as spawning, feeding or protecting its nest) may pay less attention to a sound than a fish that is swimming around or part of a school.</p> <p>Depending on the degree of the behavioural response, there may not be a significant impact. In the case of spawning herring, a significant impact to a population may occur, if the piling sound causes the fish to move away from their spawning grounds or cease reproductive activities.</p>



MM 1.1	<p>MMO <i>Draft Unexploded Ordnance Clearance Marine Mammal Mitigation Protocol</i></p> <p>In the MMO's responses to WRs submitted at Deadline 2 [REP2- 035] the MMO states it acknowledges the Applicant's creation of the Draft Unexploded Ordnance Clearance Marine Mammal Mitigation Protocol [APP-237] and that the Applicant is confident that appropriate mitigation can be secured. Confirm if there are any outstanding concerns from the MMO, particularly but not exclusively, relating to:</p> <p>a) The Marine Mammal Underwater Noise Assessment relating to fleeing animals b) Permanent Threshold Shift significance c) The TTS assessment d) Sensitivity score for cetaceans</p>		<p>There remains disagreement on the sensitivity score for cetaceans and the Permanent Threshold Shift (PTS) significance. The sensitivity scoring however does not have a major impact on the overall assessment, and the focus should be on ensuring that appropriate mitigation is put in place to reduce the risk of potential impact.</p> <p>As stated above in reference point 2.6.50 of our response to Applicant's Response to Deadline 2 Submissions Rev A (REP3-051).</p> <p>(i) Booth, Heinis &amp; Harwood (2018) is a commercial report whose findings have not been published in the peer reviewed literature. We could argue that it does not meet our usual standards of scientific evidence, and it is not unusual for us not to accept evidence put forward on this basis.</p> <p>(ii) Regardless of the report's claims about the potential implications of PTS for vital rates, permanent damage to the auditory system of a marine mammal is a form of injury, and as such can only be permitted to occur if an injury licence is in place (at least according to our understanding of the relevant protected species legislation)</p> <p>(iii) As a rule, the use of expert elicitation to derive estimates of quantitative variables (in this case vital rates) should be treated with a large degree of scepticism. The uncertainties are large and the evidence is sparse.</p>
MM 1.2	Natural England MMO		The MMO consider that comments regarding the underwater noise assessment and modelling in



	<p><i>Worst-case Piling Scenario for Marine Mammals</i></p> <p>State whether there are any ongoing concerns with the Applicant's modelling of the worst-case scenario for piling in relation to marine mammals.</p>		<p>relation to Marine mammals which we raised during the ES review consultation have largely been addressed.</p> <p>Construction noise monitoring should include measurements of noise generated by the installation of the first four piled foundations of each piled foundation type to be installed. The MMO would appreciate if the modelling details we have asked for could please be included in future iterations of the modelling reports.</p> <p>The MMO has previously raised that Table 5-2 in Appendix 11.3 Underwater noise assessment technical report (APP-149) provides a summary of the estimated unweighted source levels and transmission losses for the different construction (continuous) noise sources considered. Figure 5-1 shows the 1/3 octave frequency bands used as a basis for the Southall et al. (2019) weightings used in the simple modelling. The MMO understands that propagation loss is a function of the environment. Please could the Applicant explain why the propagation loss varies quite significantly between the different sources, particularly when the source spectra (as per Fig. 5-1) are not that different?</p>
MM 1.3	<p>The Applicant Natural England MMO</p> <p><i>Offshore In-principal Monitoring Plan</i> Natural England's Risk and Issue log submitted at Deadline 2 [REP2-041] continues to include an amber concern (C40) with the marine mammal section of the Offshore In-Principal Monitoring Plan,</p>	<p>No significant effects are predicted based on the marine mammal underwater noise assessment (see Chapter 11: Marine mammals, Volume 2 of the ES [REP1-004]), therefore the Applicant maintains that post-consent monitoring for marine mammals is not required.</p> <p>The mitigation measures (MMOb, PAM, ADDs) detailed in the Draft Piling Marine Mammal Mitigation Protocol [APP-236] and the Draft Unexploded Ordnance Clearance Marine Mammal Mitigation [APP237] detail standard</p>	<p>As a minimum, it is expected that the Applicant will undertake monitoring of the first four piled foundations of each foundation type. Noise measurements should be made in line with the Good Practice Guide No.133: Underwater Noise Measurement (National Physical Laboratory, 2014).</p> <p>It will be important to compare the noise propagation modelling presented in the</p>





	<p>regarding proposed post-consent monitoring only including the first 4 piles. It states there is no consideration of monitoring the effectiveness of the mitigation measures in reducing the impacts to acceptable levels.</p>	<p>mitigation for the industry, with studies and literature to support the effectiveness of the measures cited therein.</p> <p>The underwater noise will be monitored for the first four piles as per the industry standard will validate the noise modelling undertaken at the post-consent stage in line with the most recent project description. This will be used to validate the conclusions presented in the final Piling Marine Mammal Mitigation Protocol produced for the post-consent stage.</p> <p>At this stage the Applicant has not committed a particular Noise Abatement System for mitigation therefore the specific design for monitoring mitigation outcomes is not detailed. The Applicant will continue to consider mitigation methods.</p> <p>The noise monitoring will take place during the start of the piling program with noise monitoring undertaken of the first four piles.</p> <p>Lessons learnt from other projects and Noise Abatement System (NAS) trials will be considered as part of the decision-making process regarding efficacy of NAS.</p> <p>The effectiveness of potential mitigation measures has therefore not been detailed further. The minimum and maximum noise reduction efficacy for various Noise Abatement System (NAS) have been detailed in Table 5-3 in Draft Piling Marine Mammal Mitigation Protocol [APP-236]. The Applicant is providing more information in regard to the limitation of NAS measures in Appendix I MM: Noise Abatement Systems (of this document).</p>	<p>Environmental Statement (and subsequent noise assessments), to the underwater noise results (measured data) generated during field monitoring. Such comparisons should be presented in a quantitative way. In particular, how do the measured noise spectra of pile driving compare with the predictions? A direct comparison, for example, could be shown unambiguously in a figure, as this is the primary purpose of the report and should be its main finding.</p> <p>The MMO note at this stage, the Applicant has not committed a particular Noise Abatement System for mitigation and, therefore, the specific design for monitoring mitigation outcomes is not detailed. The Applicant will continue to consider mitigation methods.</p> <p>The MMO has previously raised in point 7.1.20 of our Deadline 2 response (REP2-035) that in order to determine the efficacy of noise abatement systems at Rampion 2, evidence will be required in the form of measurements of piling noise with and without noise abatement. It is understood that the black seabream spawning (nesting) season is March to July. Therefore, we would recommend obtaining measurements of non-abated piling outside of this window.</p>
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## 5.12 Applicant's Response to Deadline 2 Submissions Rev A (REP3-051)

5.12.1 The following table contains MMO responses to questions raised by the Applicant in Table 4.6 (Applicant's Response to Marine Management Organisation's Deadline 2 Submission).

Table 3 – MMO responses to questions raised by the Applicant.

Reference	Comment / Question	Applicant response	MMO response
2.6.41 Page 103	1.12.5 MMO 4.6.22: The MMO maintains the position that the use of a threshold of 141 decibel (dB) re 1 micropascal ( $\mu\text{Pa}$ ) Sound Exposure Level, single strike (SELs) as defined by Kastelein et al., (2017) is not an appropriate or conservative threshold for adult black Sea Bream. The MMO welcomes the Applicant's commitment to continued engagement with the MMO and Natural England to seek resolution in respect of this matter, and the MMO hopes that this can be resolved during examination.	<p>The Applicant would like to request further evidence from the Marine Management Organisation as to their position of the inadequacy of the proposed threshold. In particular, it would be useful understand how peer reviewed literature supports the application of the 135dB threshold (as based on Hawkins et al., (2014)) to inform impact assessments, as opposed to the 141dB threshold (as defined by Kastelein et al., (2017)).</p> <p>The Applicant notes that Hawkins et al (2014) recommend that the values from the study are not used to inform impact assessments.</p>	<p>The 'behavioural' threshold of 135 dB SELss (single strike sound exposure level), is recommended on the basis that Hawkins <i>et al.</i> (2014) is one of the few known studies that was undertaken in the wild (rather than in a laboratory setting). Hawkins <i>et al.</i> (2014) exposed schooling sprat to short sequences of repeated impulsive playback sounds at different sound pressure levels, to resemble that of a percussive (or impact) pile driver. The sound pressure levels to which the fish schools responded on 50% of presentations were 163.2 and 163.3 dB re 1 <math>\mu\text{Pa}</math> peak-to-peak, and the single strike sound exposure levels were 135.0 and 142.0 dB re 1 <math>\mu\text{Pa}^2\text{s}</math>, for sprat and mackerel, respectively. Mackerel do not possess a swim bladder. The MMO acknowledge that sprat is a hearing specialist, and therefore, the 135 dB re 1 <math>\mu\text{Pa}^2\text{s}</math> threshold is likely to be conservative for species that are not 'hearing specialists' or do not possess a specialised connection between the swim bladder and inner ear. Any behavioural threshold must be appropriately caveated, and caveats must also be applied to the 135 dB SELss threshold.</p> <p>The MMO and Natural England have highlighted a study by Kastelein <i>et al.</i> (2017), which reported a 50% initial startle response (sudden short-lived changes in swimming speed) which occurred at an SELss of 131 dB re 1 <math>\text{mPa}^2\text{s}</math> for 31 cm</p>



			<p><u>seabass</u> and 141 dB re 1 mPa<sup>2</sup>s for 44 cm seabass. Of these thresholds, the MMO have suggested the application of the 131 dB re 1 mPa<sup>2</sup>s threshold to inform the impact assessment on nesting black sea bream to be appropriate, however the MMO restates that an appropriate threshold still needs to be agreed between all parties. As previously explained, black sea bream attain reproductive maturity at 30 cm. Thus, it is more appropriate to draw comparisons to the smaller seabass in the Kastelein study.</p>
<p>2.6.50 Page 104</p>	<p><u>Other comments</u></p> <p>1.14.1 MMO 4.7.10: The MMO acknowledges that the Applicant feels the sensitivity score for cetaceans is appropriate in the ES report. The MMO still recommend that cetaceans should be assessed as having a high sensitivity to PTS until the Applicant is able to demonstrate clearly that PTS would have a medium risk.</p>	<p>The Applicant disagrees with the Marine Management Organisation. The evidence available on marine mammal sensitivity to permanent threshold shift (PTS) does not align with the definition for High sensitivity (which states that vital rates are highly likely to be significantly affected). The Applicant has provided further evidence to support this here:</p> <p>Booth &amp; Heinis (2018) provides a summary of the most complete assessment of the evidence base on the topic of how PTS affects vital rates in marine mammals. This process involved convening 7 world leading experts on marine mammal hearing and noise, a review of the available evidence collected to date (which has not markedly changed since 2018) and their best critical judgments given the evidence base. The experts worked together to collate and discuss the current state of knowledge of threshold shifts in response to low frequency broadband sound sources (later focusing on species specific judgments as part of the elicitation process). The experts agreed that “it was important to realise that reduced hearing ability does not necessarily mean a less fit animal (i.e. an animal of lower fitness).” Following a review and discussion of the current literature, experts determined: “Following exposure to low frequency broadband pulsed noise, TTS was typically observed 1.5 octaves (see Appendix 1 - Glossary) higher than the centre frequency of the exposure sound for seals and porpoise (Kastelein et al. 2012a, Kastelein et al. 2012b, Kastelein et al. 2013a, Finneran 2015). For piling noise and airgun pulses, most energy is between ~30 Hz- 500 Hz, with a peak usually between 100 – 300 Hz and energy extending</p>	<p>The MMO acknowledges that there remains disagreement on this point. While the MMO would still recommend that cetaceans should be assessed as having a high sensitivity to PTS we acknowledge that the sensitivity scoring itself, however, does not have a major impact on the overall assessment. The focus should be on ensuring that appropriate mitigation is put in place to reduce the risk of potential impact.</p> <p>Further comments:</p> <ul style="list-style-type: none"> <li>(i) Booth, Heinis &amp; Harwood (2018) is a commercial report whose findings have not been published in the peer reviewed literature. The MMO therefore would argue that it does not meet our usual standards of scientific evidence, and it is not unusual for us not to accept evidence put forward on this basis.</li> <li>(ii) Regardless of the report’s claims about the potential implications of PTS for vital rates, permanent damage to the auditory system of a marine mammal is a form of</li> </ul>



above 2 kHz (e.g. Kastelein et al. 2015a, Kastelein et al. 2016)”. Experts considered that if PTS were to occur, this would occur as a notch in hearing loss in a narrow frequency band (occurring somewhere between 2-10 kHz). They stressed this was not a loss of hearing across this entire band. Furthermore, experts agreed (following an ad hoc analysis in the workshop – fully described in Appendix 3 of that report) it was unlikely that seals or bottlenose dolphin would experience more than 6 dB of PTS in the 2-10 kHz frequency band following exposure to low frequency broadband pulsed (LFBP) noise due to low growth rates (under low duty cycle conditions). For porpoises, the worst case was estimated be a 24 dB PTS (and 18 dB was also elicited).

Overall, experts provided best estimates of the effect of PTS on vital rates of typically less than 0.5% reduction – which is significantly smaller than the natural year-to-year variation in vital rates expected to be caused by typical environmental conditions (estimated to be 25-30% (Harwood et al 2014)).

Booth & Heinis (2018) also summarised the mechanisms experts considered as to whether PTS could significantly affect vital rates: “In considering how any PTS could affect vital rates (i.e. probability of survival, probability of fertility), experts discussed the mechanisms by which this could occur. In general, experts noted that where communication has a significant social or reproductive function, that this might be a means by which survival and/or reproduction are affected. Experts noted however that PTS would likely occur over a small frequency range and that much of the energy of communication signals either fell outside the likely range affected by PTS or that the loss of part of the signal would likely not affect detection of the communication signals.”

Given the current understanding of how PTS from piling is expected to manifest in the mammalian ear – and the mechanisms that could lead to an effect on vital rates (sensu Booth & Heinis, 2018)- the Applicant considers that it is highly unlikely that vital rates would be altered in a biologically meaningful way as a result of PTS from piling. Therefore, the Applicant maintains the sensitivity of cetaceans to PTS from piling aligns with the definition for Low sensitivity, where vital rates may be affected but not at a biologically significant level.

injury, and as such could only be permitted to occur if a Wildlife Licence was obtained from the MMO.

- (iii) As a rule, the use of expert elicitation to derive estimates of quantitative variables (in this case vital rates) should be treated with a large degree of scepticism. The uncertainties are large and the evidence is sparse.

As per page 16 (section 3.2.3 of the report), “Experts agreed it was unlikely that seals or bottlenose dolphin would experience more than 6 dB of PTS in the 2- 10 kHz frequency band following exposure to LFBP [low frequency broadband pulsed] due to low growth rates (under low duty cycle conditions)”.

Specifics to check

- (i) ‘low duty cycle conditions’ – do these apply in this case?
- (ii) Low vs. high – is there a ‘medium’ option and would we endorse it?





<p>2.6.61 Page 107</p>	<p>1.17.2 MMO 5.7.1: The MMO acknowledges that the Applicant is confident with the suitability of their underwater noise assessment, but the MMO still recommends that a conservative approach to include noise abatement measures across the entire site rather than zoning should be adopted.</p>	<p>The Applicant has committed to the use of at least one offshore piling noise mitigation technology throughout the piling campaign (commitment C-265) to deliver underwater noise attenuation to reduce predicted impacts to sensitive receptors at relevant Marine Conservation Zone (MCZ) sites and reduce the risk of significant residual effects on the designated features of these sites.</p>	<p>The MMO acknowledges the Applicant's commitment to the use of at least one offshore piling noise mitigation technology throughout the piling campaign. The final mitigation will need to be agreed with MMO, Cefas and NE.</p>
<p>2.6.171 Page 125</p>	<p>Under Water Noise 7.1.13 The report attempts to compare different types of noise (i.e., impulsive vs continuous). Throughout the report, the single strike sound exposure level (SELss) is 'converted' to the SPLRms. For example:</p> <ul style="list-style-type: none"> <li>• Section 6.2.2: "Noting that these values are SELss, 135 dB is roughly equivalent to 142 dB SPLRMS...."</li> <li>• Section 6.2.3: "Therefore 141 dB SELss (approximately equivalent to 148 dB SPLRMS) has been suggested".</li> </ul>	<p>Please refer to response in reference 2.6.168.</p> <p><i>The Applicant notes that, as explained in section 2.1.1.3 of Appendix 11.3: Underwater Noise Assessment Technical Report, Volume 4 of the Environmental Statement [APP-149], where a sound is shorter than 1 second, the SEL will be lower than the equivalent SPLRMS. As an example, for a sound of 0.2 seconds duration, the SELss will be 7 dB lower than the SPLRMS [-7=10*log(0.2)]. Analysing piling data directly measured by Subacoustech, a rough conversion of 7 dB was calculated between the two values. Kastelein et al. (2017) estimates a very similar 8 dB conversion in their experiment. Applying the suggested conversion above, 135 dB SELss would be approximately equivalent to 142 dB SPLRMS. This conversion value is relevant to impulsive piling noise and used to estimate an equivalent value that can be compared to the background noise in its own metrics, which is typically defined in terms of SPLRMS. It is not normally appropriate to define continuous background noise in terms of a 'single strike' SEL, although assuming steady state ambient noise, the conversion between SEL and SPLRMS would be approximately equal. Thus, continuous noise of 108 dB SPLRMS is equivalent to 108 dB SEL (over one second), 112 dB SPLRMS is equivalent to 112 dB SEL (over one second). and so on. It would not be appropriate to consider the extended exposure of greater than one second to low level background noise.</i></p>	<p>In addition to this response the MMO's scientific advisors Cefas were also in receipt of an Explanatory Note from Subacoustech Ltd on the SEL and rms conversion.</p> <p>It was the intention of the MMO in posing this question to sense-check the various calculations and comparisons used and by extension the plausibility of the overall argument. The Sound Pressure Levels (root mean square) SPLRMS is most commonly encountered in the context of measuring and describing continuous noise (e.g., the noise produced by vessels or indeed the ambient noise) while the noise produced by impulsive sources is typically measured using different metrics (e.g., the energy metric of cumulative SEL or the single pulse SEL, or the peak-pressure metric).</p> <p>The calculations of noise levels in the SPLRMS metric are subject to the specific averaging period, which in the context of continuous noise, is often in the order of several seconds or tens of seconds. As good practice, this time interval (averaging period) used in the calculation of SPL should be stated (Good Practice Guide for Underwater Noise Measurement, 2014).</p>



			<p>Much shorter averaging time intervals are mathematically possible, and can be encountered in certain contexts, such as estimating the perceived amplitude of a fluctuating signal by the auditory systems of animals. In the present case, the use of pulse length as the averaging time interval is indeed a plausible way of estimating the audibility of piling noise in the context of overall ambient noise. It should be noted, however, that the estimation is subject to several caveats, such as the length of the pulse, the frequency spectrum (which are both changing with the propagation range), while certain factors such as the directionality or other distinctive features of the pulse signals could make them perceptible even if they are below the ambient noise levels. Given the non-routine nature of these calculations, the MMO welcome the additional details and clarifications provided.</p> <p>The MMO defer to Natural England for their views on what would lead to a “substantial failure in the ability of seabream to breed”.</p>
<p>2.6.172 Page 125</p>	<p>7.1.14 The report notes that “studies into the impact of impulsive underwater noise generally use a different metric to describe the level noise generated, the SELss...This captures well the energy in an impulsive sound but ideally metrics should be compared like-for-like. To provide a more reliable comparison these will be converted to SPLRMS, roughly equivalent to 7 dB greater than an equivalent SELss based on data previously measured by Subacoustech”. Nevertheless, it is not clear how these empirical conversions are being</p>	<p>Please refer to the Applicant’s response in reference 2.6.168. The Applicant welcomes the interest in the intricacies of acoustic calculations. In simple terms, where sounds are shorter than 1 second, the SEL will be lower than the SPLRMS. The duration of the majority of the energy passing in one piling pulse will be much less than 1 second over any distance relevant to this project (sounds tend to ‘spread’ and get longer at great distances). A single pile strike will therefore have a lower SEL than SPLRMS. A continuous sound (e.g. background noise) of 1 second duration will have SPLRMS ≈ SEL. Both the SPLRMS and SEL are calculated over the duration of a pulse.</p>	<p>As above. The MMO welcome the additional clarification provided by the Applicant / Subacoustech.</p>



	made, and it would be helpful if further contextual clarity was provided. For example, what assumptions have been made regarding the pulse length / number of pulses in 1 minute? (The RMS averaging appears to be done over 1 minute intervals). By definition (see equation shown on page 5, section 3.4), the SEL over 1 second has a value equal to that of the SPLrms. Therefore, if there was one single pulse per second, the SELss and SPLrms would have similar values. Conversely, if SPLrms has higher values than SELss, this implies that there are multiple pulses within 1 second. While this is very plausible in some contexts (e.g., vibropiling noise), it is unlikely to be the case for impact piling.		
2.6.173 Page 125	7.1.15 Furthermore, the MMO would argue that it is not entirely appropriate to apply such conversions to noise thresholds (such as the 135 dB SELss) as this further removes them from their relevant biological context. The best practice for comparing with such thresholds would be to express the generated noise levels (or the measured noise levels, if feasible) in the metric of the thresholds.	The Applicant agrees that every effort should be made to compare any two items in the same metric. As the SELss is intended to describe a 'single strike' or impulse, this is not really suitable for measuring background noise, hence the conversion to SPLRMS. However, as noted in response 2.6.172, the sound exposure level of a continuous noise (e.g. background noise) is approximately equivalent to the SPLRMS. Therefore the 1 second SEL of the underlying background noise (see ref 2.6.168) is approximately 108.4 dB SEL, or approximately 134.3 dB SEL for 1% of the time. However this is not the recommended use of the SEL metric.	As above. The MMO welcome the additional clarification provided by the Applicant / Subacoustech.
2.6.174 Page 126	7.1.16 The MMO also find the report somewhat misleading in parts. Section 6.2.3 states that "Therefore 141 dB SELss (approximately equivalent to 148 dB SPLRMS) has been suggested. It is slightly above the noise levels that are already present (the baseline monitoring showed that pre-existing noise levels are seen to exceed 140 dB and occasionally reach up to 148 dB)....". Earlier on, in the Executive	The Applicant maintains that the text within the document is an accurate reflection of the range of noise levels recorded during the survey and notes that the text makes no reference to duration, simply noting that the relevant sound levels are exceeded on multiple occasions.	The MMO acknowledges that while the monitoring report may be an accurate reflection of the range of noise levels recorded at the survey, we maintain that the wording 'regularly exceeded' is somewhat misleading for the reasons previously explained.



	<p>Summary, the report also notes that “The 2023 results support the findings of the 2022 survey and demonstrate that noise levels varied generally between 105 dB and 125 dB SPLRMS, although regularly exceeded 135 dB SPLRMS and exceedance of 140 dB SPLRMS was not unusual”. When the MMO look at the figures provided in Appendix A (showing the one-week data summaries), the noise levels only occasionally (and very briefly) exceed 135 dB SPLrms and on some days do not reach this level at all.</p>		
<p>2.6.175 Page 126</p>	<p>7.1.17 While these exceedances appear ‘regular’ when seen over a 6-month interval (Figure 5.1 on page 10 of the report), the situation is very different when comparing to the piling noise and the associated timescales. While the ambient noise may exceed 135 dB SPLrms for a few minutes per day (e.g., roughly 1% of the time, according to Table 6.1), impact piling will be undertaken for (potentially) hours at a time (and noise levels might presumably exceed 135 dB rms for the entire duration of piling).</p>	<p>This is noted by the Applicant, however, as the purpose of this data is primarily to inform the potential for behavioural effects, it is clearly relevant to note that these sound levels are exceeded and so would not be unusual for the black seabream to experience, reducing the likelihood of a consequent behavioural response.</p>	<p>As above. Please see response to comment 2.6.174.</p>
<p>2.6.176 Page 126</p>	<p>7.1.18 Mitigation is not specifically discussed in detail in the report. Of relevance, section 6.2.2 of the document states that “To minimise adverse impacts from piling affecting bream in the Kingmere MCZ, noise reduction should be applied that reduces the risk of avoidance behaviour. As stated above, no criteria are available that can characterise this specific scenario, so previous studies carried out for this Project have referred to research based on similar species (sea bass, red seabream) to make a recommendation for</p>	<p>Noted, the Applicant has no further comments on this matter at this time.</p>	<p>The MMO notes the Applicant’s response. The MMO has no further comments to make at this time.</p>





	a noise limit at the Kingmere MCZ that can be met using commercially available noise abatement systems for piling as Best Practicable Means”.		
2.6.177 Page 126	7.1.19 We previously advised that the actual (noise) reduction in dB will depend on the site conditions at Rampion 2, and the source spectra. Frequency is an important component to consider. The efficacy of a noise abatement system to reduce the risk of impact depends on the frequency range at which sound energy is reduced and on the target species, as each species is sensitive to a certain frequency range. Fish, for example, are typically more sensitive to sound at low frequencies, where the noise reduction from noise abatement systems tends to be smaller (See MMO S56 Response).	Whilst this point is noted, the Applicant would refer to Bellmann et al (2020) Figure 32, which shows the effectiveness of a bubble curtain to be in excess of 15 dB for all frequencies above the very low 32 Hz band. At the 125 Hz band, where the majority of noise from piling tends to occur, their performance is recorded to be even greater than this.	The MMO notes the applicant’s response.  The purpose of this comment was primarily to make the Applicant aware of the impact of frequency ranges on the efficacy of noise abatement system when considering their final mitigation plans and options.  The MMO has no further comments to make at this time.
2.6.178 Page 127	7.1.20 The MMO recommended modelling the effect of noise abatement so that the regulator is aware of the risk reduction options available. It should be clear in the assessment which noise abatement measures, or combinations of measures, are being modelled. Ultimately, to determine the efficacy of such systems at Rampion 2, evidence will be required in the form of measurements of piling noise with and without noise abatement. The MMO understands that the Black Sea Bream spawning (nesting) season is March to July. Therefore, the MMO would recommend obtaining measurements of non-abated piling outside of this window.	The Applicant confirms that modelling of the effects of noise abatement measures have been undertaken; the modelling outputs and the potential technologies proposed to achieve these attenuations are provided in the In Principle Sensitive Features Mitigation Plan [APP-239] (updated at Deadline 3).	The MMO acknowledges the applicant’s comments.  Please refer to MMO comments made regarding the applicant’s In Principle Sensitive Features Mitigation Plan Rev C (REP3-046) in Section 5 of this response.
2.6.179 Page 127	7.1.21 The report does not present any new information as such relating to the	Please refer to the Applicant’s response in reference 2.6.164 above.	The MMO note that as requested by the Examining Authority, the Applicant has



	<p>thresholds for black bream. As the report notes, adult European seabass displayed an initial startle response between 141 dB SELss (single strike sound exposure level) and 147.4 dB SELss, which was short-lived (i.e. less than two minutes) at 141 dB SELss. The Applicant maintains that the selection of the lower value of these – 141 dB SELss – is recommended as a reasonable precautionary threshold. The MMO has suggested the use of a lower 135 dB SELss threshold, which was reported as leading to a behavioural reaction in sprat in a quiet inland environment.</p>		<p>undertaken noise modelling to demonstrate the effect of a 135 dB SELss threshold. This has been provided in Fish and Shellfish Ecology Appendix H FS: Noise Thresholds for black sea bream of Applicant's Responses to Examining Authority's First Written Questions (REP3-050).</p> <p>Please refer to MMO comments on this submission provided in in Section 5.</p> <p>Regarding the applicant's response as stated at 2.6.164, the MMO do not believe sufficient evidence has been provided to justify why the startle response recorded at 131dB for the smaller fish in the Kastelein paper should be ignored.</p> <p>To reiterate, the MMO has previously highlighted that in the study by Kastelein <i>et al.</i> (2017), a 50% initial response threshold occurred at an SELss of 131 dB re 1 mPa2 s for 31 cm fish and 141 dB re 1 mPa2 s for 44 cm fish; thus, the small fish reacted to lower SELss than the large fish.</p> <p>Black sea bream attain reproductive maturity at 30cm, so noting that the smaller seabass of 31cm showed initial responses at a threshold of SELss of 131 dB re 1 mPa2 s it can be argued that this threshold is more suitable.</p>
<p>2.6.180 Page 127</p>	<p>7.1.22 The MMO note that the Applicant is of the opinion that the 135 dB SELss threshold is not only relevant to a much more sensitive species and derived from a different environment, it is also expected to be difficult to achieve across the Rampion 2 Order Limits, practically, even with two methods of direct noise mitigation (such as a double bubble curtain and attenuated</p>	<p>The Applicant directs the MMO to the response in reference 2.6.164 above, which details the Applicant's reasoning for not using the 135dB SELss threshold to inform the impact assessment. To summarise, the 135dB SELss threshold is not considered relevant and is not supported in the literature for use in impact assessments and, nor are the results of the study applicable to a more industrialised part of the sea with much higher background noise levels.</p>	<p>Please see response to comment 2.6.41 above. The MMO consider that this issue is still unresolved and maintain that a behavioural noise threshold of 135dB is more appropriate. However, the MMO restates that an appropriate threshold needs to be agreed between all parties.</p>



hammer). Therefore 141 dB SELss has been suggested. However, the MMO maintain that the threshold of 135 dB SELss, as per Hawkins et al., (2014), should be used as a precautionary approach to modelling.



### **5.13 Outline Scour Protection and Cable Protection Plan Rev B (REP3-039)**

5.13.1 The MMO notes the Applicant has added the following proposed mitigation measures to this document.

- I. C-283 - Gravel bags laid on the seabed to protect the cable barge during construction of Rampion 2, will be removed prior to the completion of construction, where practicable.
- II. C-288 - The Applicant is committed to minimising the release of plastics into the marine environment, and commits to using suitable alternatives, where this is practicable.
- III. C-289 - The Applicant will use secondary protection material, where practicable, that has the greatest potential for removal on decommissioning of the Proposed Development.
- IV. C-297 The location of gravel beds will be microsituated to avoid sensitive features, where practicable.

5.13.2 Please refer to benthic comments made in relation to the In Principle Sensitive Features Mitigation Plan provided earlier in this section for comment on these proposals.

### **5.14 Outline Marine Written Scheme of Investigation Rev B (REP3-041)**

5.14.1 The MMO understands that as stated in Paragraph 5.3.2 of our Deadline 2 submission (REP2-035) that Historic England (HE) have previously raised specific areas of concern over the evaluations and provisions as presented in the Marine Written Scheme of Investigation (WSI).

5.14.2 The MMO defer to the opinion of HE on whether this updated version of the WSI has suitably addressed those concerns and will maintain a watching brief on whether HE concerns are resolved.

5.14.3 The MMO acknowledges HE previous request for provisions within the Schedule of Requirements to secure avoidance and/or mitigation of harm by requiring the approval of Relevant authorities. The MMO will keep a watching brief on further documents provided by HE to the Applicant.

### **5.15 Applicant's Responses to Historic England Deadline 1 Submission on Marine Archaeology Rev A (REP3-056)**

5.15.1 This document contains the Applicant's response to Historic England's Written Representations submitted at Deadline 1 (REP1-055). The MMO notes that in the Applicant's response to WR comment 5.7 it is stated that under condition 11(3) of the Draft Development Consent Order that pre-commencement archaeological investigations and pre-commencement material operations must only take place in accordance with a specific WSI which has been submitted to and approved by the MMO.

5.15.2 This WSI must be in accordance with the details set out in the Outline Marine Scheme of Investigation. As stated above the MMO is aware of concerns raised by HE concerning the suitability of the Applicant's previously submitted WSI and defer to the





advice of HE on the suitability of the WSI and if the issues raised previously have been satisfactorily addressed.

- 5.15.3 The MMO notes that in WR comment 11.9 that HE has raised concerns that detailed advice provided in relation to the Applicant's Outline Marine WSI during pre-application has not been acted upon. The MMO notes that the Applicant has responded to these concerns by stating that these issues were discussed thoroughly at the Expert Topic Group dated 16/06/2022 and feature on page 649 of the Evidence Plan (Part 1 of 11) (APP-243). The MMO once again defers to the advice of HE on whether this response adequately addresses previous concerns and on the overall suitability of the current WSI.
- 5.15.4 The MMO notes that in WR comment 11.26 that HE do not agree with the Applicant's approach to pre-commencement surveys as set out in Paragraph 9.1.5 of the Outline Marine WSI. It is the belief of HE that an approved WSI should be used to inform pre-commencement surveys as opposed to the Applicant's current proposal that the draft WSI will be updated prior to pre-commencement surveys.
- 5.15.5 The MMO notes the Applicant's acknowledgement of these comments and their response which states that Paragraph 9.1.5 is in accordance with guidance as set out by the Crown Estate in regards to Archaeological WSI for Offshore Wind Farm Projects and is consistent with the approach of recently consented OWF such as Hornsea 4 and East Anglia Two.
- 5.15.6 The MMO notes that specific survey details will be outlined in specific methods statements as stated in the Outline Marine WSI. The MMO defers to HE advice on the suitability of the methods presented in the updated Outline Marine WSI submitted at Deadline 3 (REP3-041).

## **5.16 EN010117-001173-Written Questions FINAL**

- 5.16.1 In response to The Examining Authority's Written Questions, question FS 1.20 directed towards the MMO remained outstanding from out Deadline 3 response.
- 5.16.2 In question FS 1.20 it is stated that the Applicant has submitted further information on sandeel habitat which it says is undertaken following the MarineSpace (2013a) methodology. This new data is said to be contained with the Applicant's deadline 1 submission Further information for Action Points 38 and 39 – Underwater Noise (REP1- 020).
- 5.16.3 In Figure 3-2 (REP1-020) displaying Sandeel Spawning Habitat Suitability Assessment, the Applicant's 'heat' scale ranges from 0 – 9 which is inconsistent with the 'heat' scale defined by the MarineSpace (2013) methodology, which ranges from 0 – 16. Whilst some layers may not occur in all regions, for example the Eastern Sea Fisheries Joint Committee (ESFJC) Fishing Grounds layer, they must not be omitted as the categorisation of 'heat' associated with mapping according to MarineSpace (2013) explicitly categorises 'heat' scores into four discrete intervals: 1-4 (low), 5-8 (medium), 9-12 (high), 13-16 (very high).



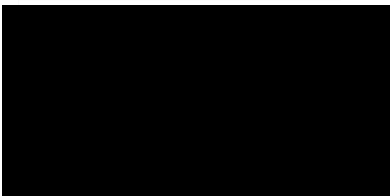
5.16.4 The MMO directs the Applicant to Paragraphs 4.5.4 & 4.5.5 of our Deadline 3 response (REP3-076) for comments relating to the use of MarineSpace (2013) methodologies which are also applicable here. The MMO does not consider that the Applicant has presented information on sandeel habitat which conform to methodologies as defined MarineSpace (2023).

### **5.17 Applicant's Response to Prescribed Consultees' Written Representation (REP2-026)**

5.17.1 The MMO has consulted with our scientific advisors Cefas and concluded that as this document relates largely to comments raised by NE and other agencies that the MMO has no further comments to make at this time. The MMO defer to the advice of Natural England as to whether the issues raised previously have been satisfactory addressed by this document.

5.17.2 The MMO may provide further comments on this document in the future.

Yours faithfully



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