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# **East Anglia ONE North and East Anglia TWO Offshore Windfarms**

## **Applicants' Comments on Marine Management Organisation's Deadline 3 Submissions**

Applicant: East Anglia TWO and East Anglia ONE North Limited

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Author: Royal HaskoningDHV

**Applicable to East Anglia ONE North and East Anglia TWO**



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# Table of Contents

1	Introduction	1
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## Glossary of Acronyms

APP	Application Document
BEIS	Department for Business, Energy & Industrial Strategy
CIA	Cumulative Impact Assessment
DCO	Development Consent Order
DML	Deemed Marine Licence
EDR	Effective Deterrent Range
EIA	Environmental Impact Assessment
EMF	Electromagnetic Fields
EPS	European Protected Species
ES	Environmental Statement
ETG	Expert Topic Group
ExA	Examining Authority
FLCP	Fisheries Liaison and Co-existence Plan
FLO	Fisheries Liaison Officer
FLOWW	Fishing Liaison with Offshore Wind and Wet Renewables Group
HDD	Horizontal Directional Drill
HRA	Habitats Regulation Assessment
IHLS	International Herring Larvae Survey
MCA	Maritime and Coastguard Agency
MHWS	Mean High Water Springs
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Management Organisation
MPA	Marine Protected Area
MSS	Marine Scotland Science
NE	Natural England
NFFO	National Federation of Fishermen's Organisation
NSIP	Nationally Significant Infrastructure Project
NtM	Notices to Mariners
PEIR	Preliminary Environmental Information Report
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SEL	Sound Exposure Level
SIP	Site Integrity Plan
SNS	Southern North Sea
SoCG	Statement of Common Ground
SoS	Secretary of State
SPA	Special Protected Area
SPL	Sound Pressure Level
SPR	ScottishPower Renewables
SSC	Suspended Sediment Concentrations
UXO	Unexploded Ordnance



## Glossary of Terminology

Applicant	East Anglia ONE North Limited / East Anglia TWO Limited
East Anglia ONE North project	The proposed project consisting of up to 67 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia TWO project	The proposed project consisting of up to 75 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia ONE North / East Anglia TWO windfarm site	The offshore area within which wind turbines and offshore platforms will be located.
European site	Sites designated for nature conservation under the Habitats Directive and Birds Directive, as defined in regulation 8 of the Conservation of Habitats and Species Regulations 2017 and regulation 18 of the Conservation of Offshore Marine Habitats and Species Regulations 2017. These include candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas.
Generation Deemed Marine Licence (DML)	The deemed marine licence in respect of the generation assets set out within Schedule 13 of the draft DCO.
Horizontal directional drilling (HDD)	A method of cable installation where the cable is drilled beneath a feature without the need for trenching.
HDD temporary working area	Temporary compounds which will contain laydown, storage and work areas for HDD drilling works.
Inter-array cables	Offshore cables which link the wind turbines to each other and the offshore electrical platforms, these cables will include fibre optic cables.
Landfall	The area (from Mean Low Water Springs) where the offshore export cables would make contact with land, and connect to the onshore cables.
Meteorological mast	An offshore structure which contains meteorological instruments used for wind data acquisition.
Marking buoys	Buoys to delineate spatial features / restrictions within the offshore development area.
Monitoring buoys	Buoys to monitor <i>in situ</i> condition within the windfarm, for example wave and metocean conditions.
Offshore cable corridor	This is the area which will contain the offshore export cables between offshore electrical platforms and landfall.
Offshore development area	The East Anglia ONE North / East Anglia TWO windfarm site and offshore cable corridor (up to Mean High Water Springs).
Offshore electrical infrastructure	The transmission assets required to export generated electricity to shore. This includes inter-array cables from the wind turbines to the offshore electrical platforms, offshore electrical platforms, platform link cables and export cables from the offshore electrical platforms to the landfall.



Offshore electrical platform	A fixed structure located within the windfarm area, containing electrical equipment to aggregate the power from the wind turbines and convert it into a more suitable form for export to shore.
Offshore export cables	The cables which would bring electricity from the offshore electrical platforms to the landfall. These cables will include fibre optic cables.
Offshore infrastructure	All of the offshore infrastructure including wind turbines, platforms, and cables.
Offshore platform	A collective term for the construction, operation and maintenance platform and the offshore electrical platforms.
Platform link cable	Electrical cable which links one or more offshore platforms. These cables will include fibre optic cables.
Safety zones	A marine area declared for the purposes of safety around a renewable energy installation or works / construction area under the Energy Act 2004.
Scour protection	Protective materials to avoid sediment being eroded away from the base of the foundations as a result of the flow of water.
Transmission DML	The deemed marine licence in respect of the transmission assets set out within Schedule 14 of the draft DCO.



# 1 Introduction

1. This document is applicable to both the East Anglia ONE North and East Anglia TWO applications, and therefore is endorsed with the yellow and blue icon used to identify materially identical documentation in accordance with the Examining Authority's (ExA) procedural decisions on document management of 23rd December 2019. Whilst for completeness of the record this document has been submitted to both Examinations, if it is read for one project submission there is no need to read it again for the other project.
2. This document presents the Applicants' comments on the Marine Management Organisation's (MMO) Deadline 3 submission.



Point	MMO Comment	Applicants' Response
<b>Summary of Oral Cases made during the Biodiversity and Habitats Regulations Assessment (HRA) Issue Specific Hearing (ISH) 1</b>		
1.1	<p><b>Agenda Item 3 (a) (iii)</b></p> <p>The MMO welcomes the Applicants inclusion of a 2km buffer for the East Anglia 1 (EA1N) project. The MMO will review all documents submitted by the applicant with regards to managing the displacement effect on Red Throated Divers as a result of these works as well as the updated DCO/DML and will provide comments at Deadline 4.</p> <p>The MMO is interested to see where the inclusion of a 2km buffer will impact any other designated sites located near the proposed wind farm footprints. We expect these considerations will be included in the Applicant's Deadline 3 response.</p>	<p>Noted</p> <p>The Applicants 2km buffer commitment reduces the size of the East Anglia ONE North windfarm site. There is no change in infrastructure associated with this change (i.e. no change in turbine number or cable lengths) therefore there would be no change to effects on any other designated sites (such as the Southern North Sea SAC within which the East Anglia ONE North windfarm site is wholly located).</p>
1.2	<p><b>Agenda Item 3 (b) (iv)</b></p> <p>The MMO defers to Natural England on matters of ornithology but will review any updated documents and will provide comments at Deadline 4 if required.</p>	Noted
1.3	<p><b>Agenda Item 3 (c) (iii)</b></p> <p>The MMO defers to Natural England on matters of ornithology but will review any updated documents and will provide comments at Deadline 4 if required.</p>	Noted
1.4	<p><b>Agenda Item 3 (d) (ii)</b></p> <p>The MMO defers to Natural England on matters of ornithology but will review any updated documents and will provide comments at Deadline 4 if required.</p>	Noted
1.5	<p><b>Agenda Item 3 (e) (ii)</b></p> <p>The MMO defers to Natural England on matters of ornithology but will review any updated documents and will provide comments at Deadline 4 if required.</p>	Noted





Point	MMO Comment	Applicants' Response
1.6	<p><b>Agenda Item 3 (f) (iii)</b></p> <p>The MMO did not have any comments on this agenda point.</p>	Noted
1.7	<p><b>Agenda Item 4</b></p> <p>The MMO defers to Natural England on technical matters regarding the disturbance of Harbour Porpoise in the Southern North Sea (SNS) Special Area of Conservation (SAC). The MMO is aware that an updated Marine Mammal Mitigation Protocol (MMMP) and In-Principle Site Integrity Plan (IPSIP) will be submitted at Deadline 3, the MMO looks forward to reviewing these documents and will provide a response at Deadline 4.</p>	Noted
1.7a	The MMO recognises that there is disagreement between interested parties as to the role of the Site Integrity Plan (SIP) in this application and how it should be used, the MMO acknowledges these positions.	The Applicants refer MMO to the <b><i>Applicants' Comments on Natural England's Deadline 3 Submissions</i></b> (document reference ExA.AS-17.D4.V1; Row 004 of section 4).
1.7b	The MMO is a member of the SNS Regulators Working Group and as such, are part of discussions regarding how activities which generate noise can be managed. There is currently an Activity Tracker available for any users of the sea to update when generating noise within the SAC. This is found within the Statutory Nature Conservation Body (SNCB) Noise Guidance section on the Offshore Petroleum Regulator for Environment and Decommissioning website ( <a href="https://www.gov.uk/guidance/oil-and-gas-offshore-environmental-legislation#conservation-of-offshore-marine-habitats-and-species-regulations-2017">https://www.gov.uk/guidance/oil-and-gas-offshore-environmental-legislation#conservation-of-offshore-marine-habitats-and-species-regulations-2017</a> ), an example has been provided in Appendix 1. The tracker will work alongside the SNS SIP that will be submitted as part of the Pre-construction documents.	Noted
1.7c	The MMO maintains the position that Unexploded Ordnance (UXO) clearance should be controlled through a separate marine licence, rather than as a part of conditions within the DMLs. The Applicant is of the opinion	The Applicants maintain their position and will continue to engage with MMO on this.



Point	MMO Comment	Applicants' Response
	that any UXO activity can be controlled through the DML, the MMO is engaging in internal discussions to assess our position and will provide an update at Deadline 4	
1.7d	The MMO and the Applicant currently disagree with regards to the inclusion of the cessation wording for noise monitoring within the DML. The Applicant is of the opinion that a condition stipulating the immediate cessation of piling should it exceed the agreed threshold agreed within the MMMP is unnecessary as the MMO already has sufficient enforcement powers under Marine and Coastal Access Act 2009 (MCAA). The MMO disagrees with this and maintains the position that the cessation of piling should be conditioned. The MMO will continue to engage in dialogue with the Applicant on this issue as well as review any updates to the DML/DCO and provide comments at Deadline 4.	The Applicants have updated condition 21(3) of the Generation DML and condition 17(3) of the Transmission DML within the draft DCO submitted at Deadline 3 as requested by the MMO in order to address the MMO's concerns.
1.8	<b>Agenda Item 5 (a) (ii)</b>  The MMO has no comments to make at this time, the MMO will review all submissions related to Benthic Ecology at Deadline 3 and will provide comments at Deadline 4.	Noted
1.9	<b>Agenda Item 5 (b)</b>  The MMO has set out our minor points related to the <i>Sabellaria</i> Management Plan in our Deadline 2 response.  The MMO also welcomes Natural England's comments on this document and is happy to provide updated responses when necessary. The MMO has a meeting scheduled with the applicant 18 December 2020 and looks forward to advancing discussions on this matter.	The Applicants have responded to the MMO's comments on the outline <i>Sabellaria</i> Reef Management Plan within <b>Applicants' Comments on MMO Deadline 2 Submissions</b> (REP3-069).  An updated <b>outline <i>Sabellaria</i> Reef Management Plan</b> has been submitted at Deadline 4 (document reference ExA.AS-11-D4.V2) to address comments raised by Natural England within their Deadline 3 submission.



Point	MMO Comment	Applicants' Response
<b>2. Comments on any additional information/submissions received at Deadline 2</b>		
2.1	<p><b>Cumulative Auk Displacement and Seabird Assemblage Assessment of Flamborough and Filey Coast Special Protection Area and Gannet Population Viability Analysis [REP2-006]</b></p> <p>The MMO has reviewed this document and defers to Natural England on the appropriateness of the assessments conducted by the applicant. The MMO remains in discussions with both Natural England and the Applicant on the potential impacts to offshore ornithology and have attended several workshops on the subject with both parties.</p>	Noted
2.2	<p><b>Guide to the application [REP2-002]</b></p> <p>The MMO has no comments to make on this document but appreciate its usefulness for the application process.</p>	Noted
2.3	<p><b>Applicants' Comments on Written Representations Volume 2 Technical Stakeholders [REP2-016]</b></p> <p>The MMO supports Historic England's position regarding Written Scheme of Investigation (WSI) and welcomes the applicant's commitment to amending the DCO/DML to include this. The MMO will review any updates and provide comment at Deadline 4.</p>	The Applicants wish to clarify that the draft DCO itself has not been updated with respect to the WSI (offshore) however as described in REP2-016, the outline WSI (offshore) was updated (REP3-029) at Deadline 3 to address comments from Historic England.
2.3a	<p>The MMO recognises that there are still outstanding ornithological issues between the applicant and the Royal Society for the Protection of Birds (RSPB). The MMO defers to Natural England on ornithological matters but will review any updated documents from the applicant and RSPB and provide comment at Deadline 4.</p>	Noted



Point	MMO Comment	Applicants' Response
2.3b	The MMO recognises that there are still outstanding issues between the applicant and The Wildlife Trust with regards to the approach to marine mammal monitoring within the SNS SAC and the predicted effects on site integrity cited by the applicant. The MMO defers to Natural England on Habitat Regulations matters. The MMO is still in discussions with the Applicant with regards to the use of the SNS SAC SIP and will review the updated documents submitted at Deadline 3 and provide comments at Deadline 4.	Noted
2.3c	The MMO recognises that outstanding issues remain between the Applicant and Suffolk Preservation Society with regards to the impact to Areas of Outstanding Natural Beauty (AONB) as a result of these works. The MMO defers to Natural England on these matters but will review any updated documents and provide comments at Deadline 4 if required.	Noted
2.4	<p><b>Effects with Regard to the Statutory Purposes of the Suffolk Coast and Heaths AONB and Accordance with NPS Policy [REP2-008]</b></p> <p>The MMO has reviewed this document. The MMO notes that with regards to the potential impacts to AONB, the Applicant and Natural England are not in agreement. The MMO hopes these issues can be resolved.</p> <p>The MMO also notes that the Applicant has referred to the potential impacts of these projects as 'temporary and reversible' in nature. The MMO defers to Natural England on the appropriateness of this statement.</p> <p>The MMO notes the points raised by the Applicant in sections 5.2.3.1.2 and 5.2.3.2.1 and defers to Natural England on the effectiveness of the actions undertaken by the applicant to reduce offshore impacts to AONB.</p>	Noted



Point	MMO Comment	Applicants' Response
<b>2.5 Applicants' Comments on Responses to the ExA WQ1s [REP2-014]</b>		
2.5a	The MMO notes that Natural England and the Applicant currently disagree with the need for a minimum flight height restriction to be conditioned in the DML. The MMO will continue to engage with both parties on this matter and will review any updates to the DCO and provide comments at Deadline 4 if required.	Noted
2.5b	The MMO acknowledges that Natural England does not consider that there are enough monitoring conditions currently contained within the DML, and that the applicant will be addressing these concerns in the revised DCO/DML to be submitted at Deadline 3. The MMO will review any updated documents and provide comments at Deadline 4.	Noted
2.5c	The MMO note that there is disagreement with the Applicant with regards to the requirement for a condition that ensures that all relevant documents are submitted to the relevant SNCB 6 months prior to any UXO activities taking place, as the applicant considers 3 months to be sufficient time. The MMO's position remains unchanged on this issue in that all relevant documents should be submitted to the relevant SNCB 6 months prior to any UXO activities taking place. This is to ensure the approval process isn't overwhelmed. The MMO notes the DML will be updated at Deadline 3 and we will continue to engage with the Applicant throughout the examination process and provide comment at Deadline 4.	The Applicants maintain their position as stated in ExA question reference 1.2.26 of REP2-014.
2.5d	The MMO will continue to engage in discussion with the applicant, as well as Natural England and The Wildlife Trust, regarding the limiting of piling within a 24-hour period. These discussions will be captured in the updated	It is the Applicants' view that the commitments already made allow for robust control of this issue by the MMO (see Row 004 of the table within Section 4 of <b>Applicants' Comments on Natural England's Deadline 3 Submissions</b> (document reference



Point	MMO Comment	Applicants' Response
	Statement of Common Ground (SoCG) to be submitted at Deadline 4 or future written submissions.	ExA.AS-16.D4.V1) and that no further conditions are necessary. However, in recognition of MMO's, Natural England's and TWT's positions on this matter and following a discussion with NE on the 11 <sup>th</sup> January 2021, the Applicants are exploring the potential for a DML condition to be included in the DCO. The Applicants will continue to engage with Natural England, TWT and MMO on this matter and will provide a further update through submissions to the examination anticipated to be at Deadline 5 or Deadline 6. The Applicants would however re-emphasise that they consider that the approval process of the SIP and MMMP together with the associated DML conditions are the appropriate mechanisms in which to secure the commitments that have been made.
2.5e	The MMO notes that the Applicant has committed to no concurrent piling either within the Project alone or between EA1N and EA2 Projects. The MMO notes this will be updated in documents to be submitted at Deadline 3. The MMO will review any updated documents and provide a response at Deadline 4.	Noted
2.5f	The MMO welcomes the Applicant's agreement on the question as to whether the IPSIP should be revised, and both parties have concluded that this should not be the case as the IPSIP is a set of principles. The MMO has no further comments to make at this stage but will review any updated documents and provide comment at Deadline 4 if required.	Noted
2.5g	The MMO welcomes the Applicant's commitment to utilising the online noise Activity Tracker for future applications. We also welcome the confirmation that the Applicant has utilised Joint Nature Conservation Committee (JNCC) advice to inform their In-Principle SNS SAC SIP. The MMO looks forward to providing comments on the updated Plan at Deadline 4.	Noted



Point	MMO Comment	Applicants' Response
2.5h	The MMO notes that the Applicant has considered maximum impact range for Permanent Threshold Shift (PTS) of up to 11.1km using peak sound pressure level (SPL <sub>peak</sub> ) criteria as a mitigation measure to be included in their MMMP. The MMO reserves comment on this until the updated document is reviewed and will provide comments at Deadline 4.	Noted
2.5i	The MMO acknowledges that there is still an area of disagreement with the Applicant with regards to the cessation of piling if noise levels are significantly higher than those assessed in the Environmental Statement (ES). The MMO and the Applicant have a meeting on 18 December 2020 to discuss matters further.	The Applicants have updated condition 21(3) of the Generation DML and condition 17(3) of the Transmission DML within the draft DCO submitted at Deadline 3 as requested by the MMO in order to address the MMO's concerns.
2.5j	The MMO will continue to engage in discussion with the applicant regarding the adequacy of monitoring in the SNS SAC, and the use of micro-siting to protect benthic habitats if necessary, throughout the remainder of the examination.	<p>The Applicants consider that monitoring of the SNS SAC is secured through the <b>IPSIP</b> (REP3-044) and the <b>Offshore In-principle Monitoring Plan</b> (REP3-040) and conditions 16 and 17(2) of the Generation DML and conditions 12 and 13(2) of the Transmission DML within the draft DCO.</p> <p>The Applicants consider monitoring of benthic habitats is secured through the <b>outline Sabellaria Reef Management Plan</b> (updated and submitted at Deadline 4 – document reference ExA.AS-11.D4.V1). .</p>
2.5k	The MMO notes the Applicant's intention to update the Offshore WSI that is contained within the DML. The MMO supports Historic England's position on this and look forward to reviewing any updates and providing comment at Deadline 4.	Noted
2.5l	The MMO welcomes the Applicant's commitment to engaging in discussions with the MMO regarding offshore disposal sites and look forward to engaging	Following a discussion with the MMO at a meeting on the 7 <sup>th</sup> January 2021, the Applicants have agreed to update the Site Characterisation Report (Windfarm Site) (APP-592) which will be



Point	MMO Comment	Applicants' Response
	them in discussion. This issue will be captured within the updated SoCG to be submitted at Deadline 4.	submitted to the Examination at Deadline 5. The updates will provide greater detail on the ability to share disposal site HU212 (with East Anglia ONE and East Anglia THREE) in order to provide the necessary information to allow inclusion of the disposal site reference number within the DCO.
<b>2.6 Applicants' Responses to Natural England's Deadline 1 submissions [REP2-004]</b>		
2.6a	The MMO is aware that there remain ornithology-related issues between the Applicant and Natural England. The MMO is engaging with both parties and attended a workshop on 7 December 2020 to address these issues. The MMO will review any updated documents and provide comment at Deadline 4.	Noted
2.6b	The MMO reserves comment on all other matters and will review the updated DCO/DML and provide comments at Deadline 4.	Noted
<b>2.7 NE Comments on Outline Sabellaria Reef management plan [REP1-044]</b>		
2.7a	The MMO supports Natural England's comments on this document with regards to the recommended changes. The MMO reserves comment until the updated DCO/DML has been reviewed. The MMO will provide comments at Deadline 4.	<p>The Applicants are continuing to engage on this with Natural England (NE) and have submitted an updated version of the <b>outline Sabellaria Reef Management Plan</b> at Deadline 4 (document reference ExA.AS-11.D4.V1).</p> <p>The Applicants note that all outstanding issues are minor in nature.</p>
<b>2.8 NE Comments to the Outline SPA Crossing Method Statement v2 [REP1-043]</b>		





Point	MMO Comment	Applicants' Response
2.8a	The MMO has reviewed this document and defers to Natural England on matters of Cumulative and In-Combination effects in relation to the Habitat Regulations.	Noted.
<b>2.9 NE Comments on Ecological Enhancement Clarification Note [REP1-035]</b>		
2.9a	The MMO has reviewed this document and notes the advice that Natural England has provided to the applicant, the MMO defers to Natural England on these matters.	Noted
<b>3. Comments on Applicants Comments on Relevant Representatives, Volume 3: Technical Stakeholders [AS-036] including Appendices 1, 2, 3 and 6</b>		
3.1	Section 4.12 - General Comments  The MMO understands the Applicant would like the MMO's response to their comments on the MMO's Relevant Representation. The MMO believes that at both Deadline 1 and Deadline 2 we provided further comments on their positions. However, to ensure all information has been provided to the ExA the MMO has provided the following comments on matters that may not have been progressed at earlier deadlines.	Noted
3.2	Table 29 Numbers 001 to 026 Draft DCO and DMLs  As the Applicant is providing an updated draft DCO at Deadline 3 the MMO will provide comments at Deadline 4.	Noted
3.3	Table 29 Numbers 027 to 037 Certified Plans  The MMO has continued discussions with the Applicant and understands the documents will be updated and submitted at Deadline 3 and provide any	Noted



Point	MMO Comment	Applicants' Response
	comments at Deadline 4. This will also be reflected in the SoCG to be submitted at Deadline 4.	
3.3a	<p>In relation to Underwater Noise and the MMMP and comment number 37 (EA2) and 36 (EA1N) the MMO acknowledges that what the Applicant is saying is correct, in that the cumulative Sound Exposure Level (SEL<sub>cum</sub>) value would be the same as the single strike Sound Exposure Level (SEL<sub>ss</sub>) for a UXO detonation. However, the SPL<sub>peak</sub>, rather than the SEL<sub>ss</sub>, is the most appropriate metric to apply in this instance, since it better reflects the risk of instantaneous auditory injury. The risk of auditory damage depends on how high peak pressures get (and how rapidly they rise), which – out of the standard metrics available – is best reflected by the SPL<sub>peak</sub>. Therefore, it is appropriate that the SPL<sub>peak</sub> criteria is considered.</p> <p>Nevertheless, this comment was referring to the fact that the mitigation within the draft MMMP should take into consideration the largest predicted impact range, which in this case is 11 km (based on the SPL<sub>peak</sub> metric), and not 3.6 km (based on the SEL<sub>ss</sub>). The MMO believes the MMMP is based on / considers the maximum predicted impact ranges, which in this case are the SPL<sub>peak</sub> predictions.</p>	The updated <b><i>draft MMMP</i></b> submitted at Deadline 3 (REP3-043) considers the largest predicted impact range using the SPL <sub>peak</sub> metric out to 11.1km. The Applicants therefore consider that the MMO's concerns have been addressed (see comment 2.5h).
3.	<p><b>Table 29 Numbers 038 to 046 Dredge and Disposal</b></p> <p>The MMO highlights that there are still ongoing discussions with the Applicant about disposal sites. The MMO will provide an update at Deadline 4.</p>	See response to Point 2.5l above.
3.5	<p><b>Table 29 Numbers 047 to 051 Policy and Legislative Context</b></p> <p>The MMO is content with the response and the inclusion of document AS-038 - Appendix 1: Marine Policy Clarification Note.</p>	Noted



Point	MMO Comment	Applicants' Response
3.6	<p><b>Table 29 Numbers 052 to 056 Marine Geology, Oceanography and Coastal Processes</b></p> <p>The MMO is content with the Applicant's response and the inclusion of document AS-039 - Appendix 2: Wave Climatology Clarification Note. The MMO has no further comments on Marine and Coastal Processes at this stage, this has been reflected in the SoCG.</p>	Noted
3.7	<p><b>Table 29 Numbers 057 to 075 Benthic Ecology</b></p> <p>The MMO has two major outstanding comments on the Applicant's response in relation to benthic ecology. These have been set out below in 3.7.1 and 3.7.2.</p>	These issues have been discussed at SoCG meetings with the MMO.
3.7.1	<p><b>Number 063 (EA2) and 055 (EA1N)</b></p> <p>The MMO is still in discussion with the Applicant as to whether benthic monitoring for sediment and infauna is required. The MMO notes that studies undertaken in the Belgian Exclusive Economic Zone indicate impacts to benthic communities around the turbine bases up to 50m away (Degraer et al. (2012) and references therein, also refer to MMO, 2014.</p> <p>The fact that the turbine base dimensions are larger than those that have been included in monitoring studies to date implies that monitoring at a selection of turbines (cruciform design with grab samples taken for sediment and fauna at set distances from the turbines) within each of the sites, as a minimum, should be included as mandatory.</p> <p>In the absence of a strategic monitoring plan for the industry, it is also important that benthic monitoring is undertaken at these sites (EA1N/EA2) to enable the assumptions made in the ES to be validated. This information would then feed into any future strategic programmes.</p>	<p>The Applicants consider that benthic monitoring (other than that secured through the <b>outline Sabellaria Reef Management Plan</b> – updated and submitted at Deadline 4 (document reference ExA.AS-11.D4.V1)) is not required given that no impacts of greater than minor adverse significance were predicted within <b>Chapter 9 Benthic Ecology</b> (APP-057).</p> <p>The Applicants understand that the MMO are liaising with their scientific advisors Cefas in relation to this matter and that they will provide a further response at Deadline 5. The Applicants will continue to engage with the MMO on this matter and will reflect any updates within an updated SoCG as early as possible within the Examination.</p>



Point	MMO Comment	Applicants' Response
3.7.2	<p><b>Number 072 (EA2) and 074 (EA1N)</b></p> <p>The MMO recognises that the Applicant will be ensuring its vessels comply with MARPOL (International Convention for the Prevention of Pollution from Ships) protocols, however this does not negate the need to include colonisation of foundations and the spread of non-native invasive species (NIS) from the Cumulative Impact Assessment (CIA). The Applicant has recognised that other vessels operate in the area which may not apply the protocol.</p> <p>The MMO does not agree that there is limited potential for the spread of NIS within an individual windfarm or between windfarms. The Applicant also needs to consider the potential for other windfarms to be built in the vicinity of the EA wind farm sites, which could increase the potential for the EA windfarms to act as steppingstones.</p> <p>NIS dispersal could also be influenced by climate change, which may make windfarms stepping stones for species that are currently prevented from spreading by thermal constraints. The MMO therefore expects NIS to be considered in the CIA, while acknowledging that there will be a high level of uncertainty in these assessments.</p> <p>The MMO has some minor comments that may need further action below:</p>	<p>As stated in <b>Table 9.15 of Chapter 9 Benthic Ecology</b> (APP-057), the introduction of non-native species was scoped out of the CIA on the basis of embedded mitigation in the form of compliance with MARPOL by vessels working at offshore windfarm projects. No comments were raised on this matter prior to the Applications being submitted.</p> <p>The Applicants maintain the position that the relatively large distances between individual wind turbines and potential scour infrastructure within the individual windfarms would not represent any form of linked reef-like feature. The Applicants do not consider this to be a project-specific issue and consider that a strategic study managed by for example BEIS (through the SEA Research Programme) and / or The Crown Estate (through the Enabling Actions Programme) would be more appropriate.</p> <p>The Applicants understand that the MMO are liaising with their scientific advisors Cefas and that they will provide a response at Deadline 5. The Applicants will continue to engage with the MMO on this matter and will reflect any updates within an updated SoCG as early as possible within the Examination.</p>
3.7.3	<p><b>Number 059 (EA2) and 056 (EA1N)</b></p> <p>The MMO notes that contaminant samples were taken at two sites in the siltiest region along the cable corridor for EA ONE North. The MMO welcomes this and is currently confirming that this satisfies concerns from our scientific advisors.</p>	<p>The Applicants are of the view that this issue has already been discussed and closed out with the MMO and Cefas through the SoCG process. The Applicants provided an email to the MMO on the 11<sup>th</sup> of September 2020 which included details of the agreement of the sampling strategy with the MMO in April 2018.</p>



Point	MMO Comment	Applicants' Response
3.7.4	<p><b>Number 064 (EA2) and 065 (EA1N)</b></p> <p>The MMO is content with the revised assessment regarding sensitivity of Sabellaria spinulosa to smothering. The MMO will consider whether it is necessary that the ES should be updated and provide a response at Deadline 4.</p>	The Applicants consider this matter to be agreed and closed as per row MMO-202 of the SoCG updated and submitted at Deadline 4 (document reference ExA.SoCG-6.D4.V3).
3.7.5	<p><b>Number 066, 067, 068 and 071 (EA2) and 067, 068, 069 and 072 (EA1N)</b></p> <p>The MMO is content with the clarifications by the Applicant on the sensitivity of underwater noise and vibration, indirect impacts in the construction phase, and habitat change and colonisation of infrastructure during the operation phase. The MMO will consider whether it is necessary that the ES should be updated and provide a response at Deadline 4.</p> <p>The following comments are confirming the MMO's agreement with the Applicant's response.</p>	The Applicants consider these matters to be agreed and closed as per rows MMO-202 and MMO-203 of the MMO SoCG updated and submitted at Deadline 4 (document reference ExA.SoCG-6.D4.V3).
3.7.6	<p><b>Number 057 (EA2) and 053 (EA1N)</b></p> <p>The MMO is content that the Applicant's response on the use of surveying of Sabellaria Reef has been covered within the In-Principle Monitoring Plan (IPMP) and the Sabellaria Reef Management Plan. Discussions are still ongoing on the detail within these documents, however the MMO believes this can be resolved prior to the end of Examination.</p>	The Applicants consider this matter to also be closed. As indicated by the MMO in their Relevant Representation and Section 42 responses, any suspected areas of Sabellaria reef would need to be ground truthed with drop-down video surveys which is committed to in <b>Chapter 9 Benthic Ecology section 9.3.3.2</b> (APP-057), the <b>Outline Sabellaria Reef Management Plan</b> (REP1-080) and the <b>In-Principle Monitoring Plan</b> (APP-590).
3.7.7	<p><b>Number 061 (EA2) and 058 (EA1N)</b></p> <p>The MMO welcomes the information provided by the Applicant and is satisfied with the response regarding indirect effects on phytoplankton growth or egg and larval development. No further action is required by the Applicant.</p>	Noted



Point	MMO Comment	Applicants' Response
3.7.8	<p>Number 062 (EA2) and 059 (EA1N)</p> <p>The MMO agrees that this issue has been closed out. The MMO would reiterate that for future surveys the Day grab should be used in soft sediment and the Shipek grab should be used in coarser sediments for the collection of contaminants.</p>	Noted
3.7.9	<p>Number 065 (EA2) and 066 (EA1N)</p> <p>The MMO is content with the Applicant's response regarding the longevity of smothering in relation to Sabellaria and that any spoil generated from drilling for the foundations will be micrositied away from any reef identified. The MMO is aware that this has been referenced by the applicant in their Sabellaria Reef Management Outline Plan. The MMO reserves comment on this point until we have reviewed the updated DCO/DML and will provide comments at Deadline 4.</p>	Noted
3.7.10	<p>Numbers 070, 074 &amp; 075 (EA2) and 071, 062 &amp; 063 (EA1N)</p> <p>The MMO welcomes the clarification by the Applicant regarding sensitivity to smothering during the operational phase, sensitivity and magnitude and wave height. The MMO has no further comments to make.</p>	Noted
3.7.11	<p>Number 069 (EA2) and 070 (EA1N)</p> <p>The MMO acknowledges the Applicants response and will review the Design Plan once developed. In addition to this the MMO notes the IPMP will be updated and welcomes the inclusion of the Sabellaria Reef Management Plan.</p>	Noted
3.8	<b>Table 29 Numbers 076 to 089 Fish Ecology</b>	Noted, the Applicants have provided responses to these concerns at Points 3.8.2 and 3.8.6.



Point	MMO Comment	Applicants' Response
	The MMO has major comments in relation to fish ecology and is continuing discussions with the Applicant on the potential impacts to spawning herring arising from piling activity and the potential impacts to sandeel habitat arising from the construction and installation of the two offshore wind farms.	
3.8.1	<p><b>Number 076 (EA2) and 076 and 077 (EA1)</b></p> <p>The MMO thanks the Applicant for presenting the revised Figures 1-3 which depict larval densities for the International Herring Larvae Survey (IHLS) carried out in September, December and January from 2007-2017. The figures show that there is no overlap of larval densities from the Banks herring spawning grounds (September surveys) with the EA1N and EA2 sites. Larval densities for the Downs herring stock from the January IHLS surveys are shown to overlap the EA1N and EA2 sites, whereas larval densities from the December surveys (Downs stock) are typically present slightly further south of the EA1N and EA2 sites.</p>	Noted
3.8.2	<p><b>Number 077 to 084 (EA2) and 078 to 080 (EA1)</b></p> <p>The MMO thanks the Applicant for their explanation regarding the worst-case scenarios in terms of the impact ranges for pin piles and monopiles. Table 1 provides a good visual overview of the impact ranges for Temporary Threshold Shift (TTS) associated with pin piling and monopiling for a stationary and fleeing receptor for three of the four hearing categories for fish from Popper et al. (2014). Overall, the largest impact ranges for EA1N and EA2 apply to a stationary receptor for both pin piling and monopiling.</p>	Under the Popper et al. (2014) <sup>1</sup> guidance, the use of a quantitative approach for assessment of behavioural impacts on fish is not recommended, as the best research available is limited to very specific studies on species under artificial conditions. Indeed, the Applicants are not aware of any herring-specific numerical behavioural criteria. Behavioural criteria are instead described on the basis of the relative risk (high, moderate, low) to the animal at various distances from the source of noise (near (N), intermediate (I), and far (F)) (see <b>Table 2.12 of Appendix 11.4 Underwater Noise Assessment Appendix</b> (APP-468)).

<sup>1</sup> Popper AN, Hawkins AD, Fay RR, Mann D, Bartol S, Carlson T, Coombs S, Ellison WT, Gentry R, Halvorsen MB, Løkkeborg S, Rogers P, Southall BL, Zeddis D and Tavolga WN (2014) Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report, ASA S3/SC1.4 TR-2014 prepared by ANSI-Accredited Standards Committee S3/SC1 and registered with ANSI. Springer and ASA Press, Cham, Switzerland



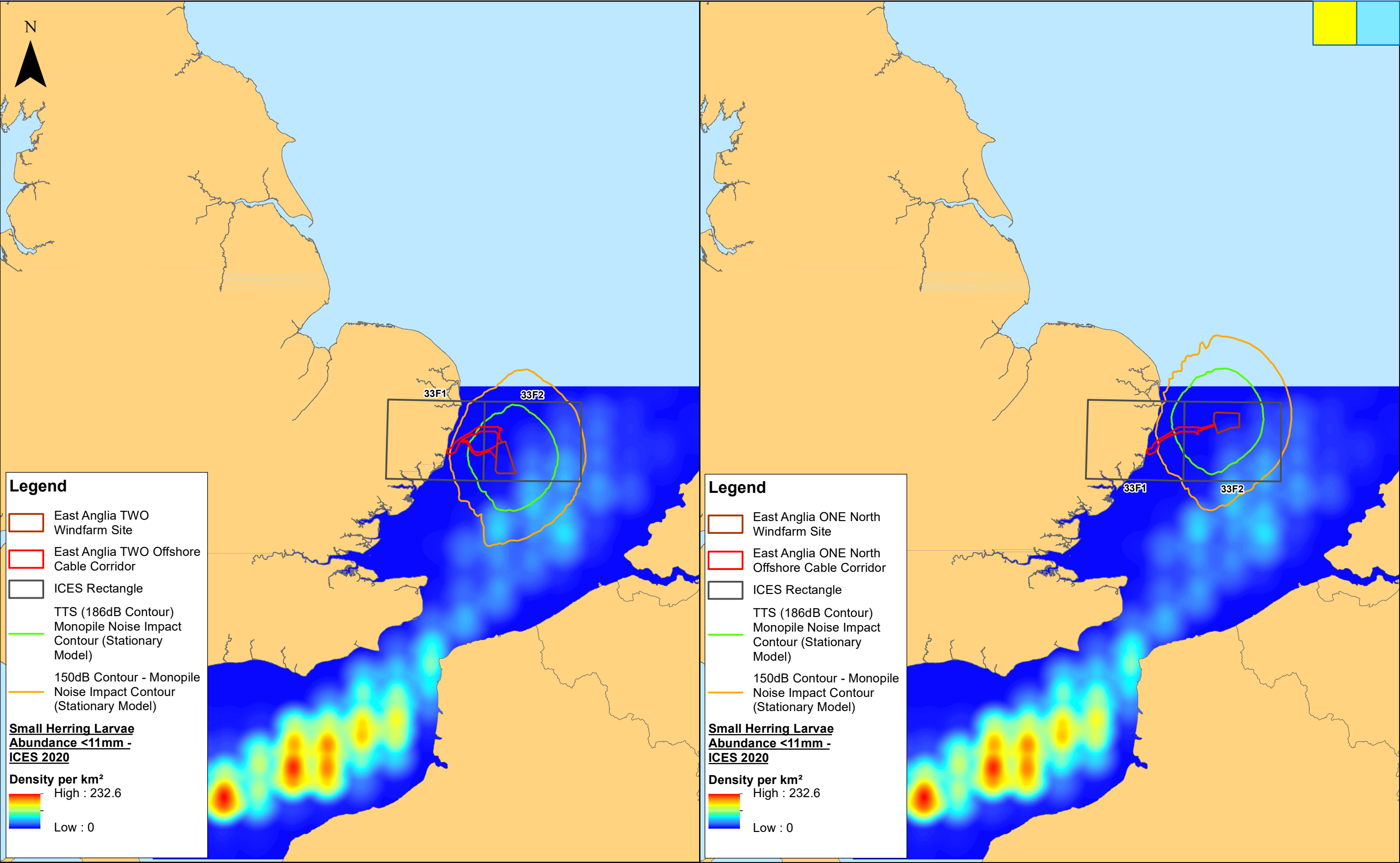


Point	MMO Comment	Applicants' Response
	<p>In addition to this the MMO also thanks the Applicant for presenting the revised underwater noise modelling using a stationary receptor and monopiling scenario, based on the January IHLS survey data (Figure 7). The TTS noise contours show that there is an overlap with areas of 'medium' larval density, indicating that noise and vibration will propagate across the northerly areas of the Downs herring spawning grounds. This correlates well with the IHLS data mapped in Figures 1-3 as discussed above.</p> <p>The TTS noise contours surrounding EA1N and EA2 overlap with areas where 'medium' larval densities typically occur. Whilst this indicates potential impacts to spawning herring and their eggs and larvae, the MMO acknowledges that the overlap is somewhat sporadic and that higher larval densities typically occur further to the South, in the English Channel, during the December spawning period. With this in mind, the MMO does not have any major concerns that the effects from noise and vibration on eggs and larvae will result in significant impacts at a population level.</p> <p>However, the MMO does have major outstanding concerns for gravid adult herring which are likely to exhibit behavioural responses to noise and vibration from piling.</p> <p>It is well understood that there are two migrations of herring stocks which take place in the Southern North Sea; the Banks stock undertake a North to South migration passing through the Southern North Sea during November, whilst the Downs herring undertake migration through the English Channel to the Southern North Sea between December and January. With this in mind, there is a need to determine whether noise and vibration from piling is likely to result in behavioural responses to migrating herring which could impede either the Banks or Downs migrations to their spawning grounds.</p>	<p>For the purpose of the assessment undertaken, in line with the definitions suggested in Popper et al. (2014), these distances were considered as follows:</p> <ul style="list-style-type: none"> <li>• Near: within tens of metres;</li> <li>• Intermediate: within hundreds of metres; and</li> <li>• Far: within thousands of metres.</li> </ul> <p>According to the Popper et al. (2014) criteria for behavioural impacts, species of fish with a swim bladder involved in hearing (i.e. herring) would be at high risk of behavioural impact both near the piling locations (tens of metres) and at intermediate distances (hundreds of metres), and at moderate risk when far (thousands of metres) from the piling location. Herring's substrate specific spawning behaviour means that they are considered to be receptors of medium sensitivity.</p> <p>Popper et al. (2014) note that the U.S. National Marine Fisheries Service uses a criterion for behavioural response of 150dB re 1 µPa (Stadler and Woodbury 2009), but states that it is unclear whether this is a peak or rms level. Hastings (2008), within Popper et al. (2014), notes however that the origin of this number is unclear, and it is not clear if it has any scientific validity. Moreover, the criterion does not specify a particular behaviour, but simply assumes there is the potential for fish to experience a behavioural response.</p> <p>Nevertheless, given the absence of specific advice within the scientific literature or from the MMO on how to model potential behavioural impacts on herring from piling, the 150dB SPLpeak noise contour has been presented for the maximum hammer</p>

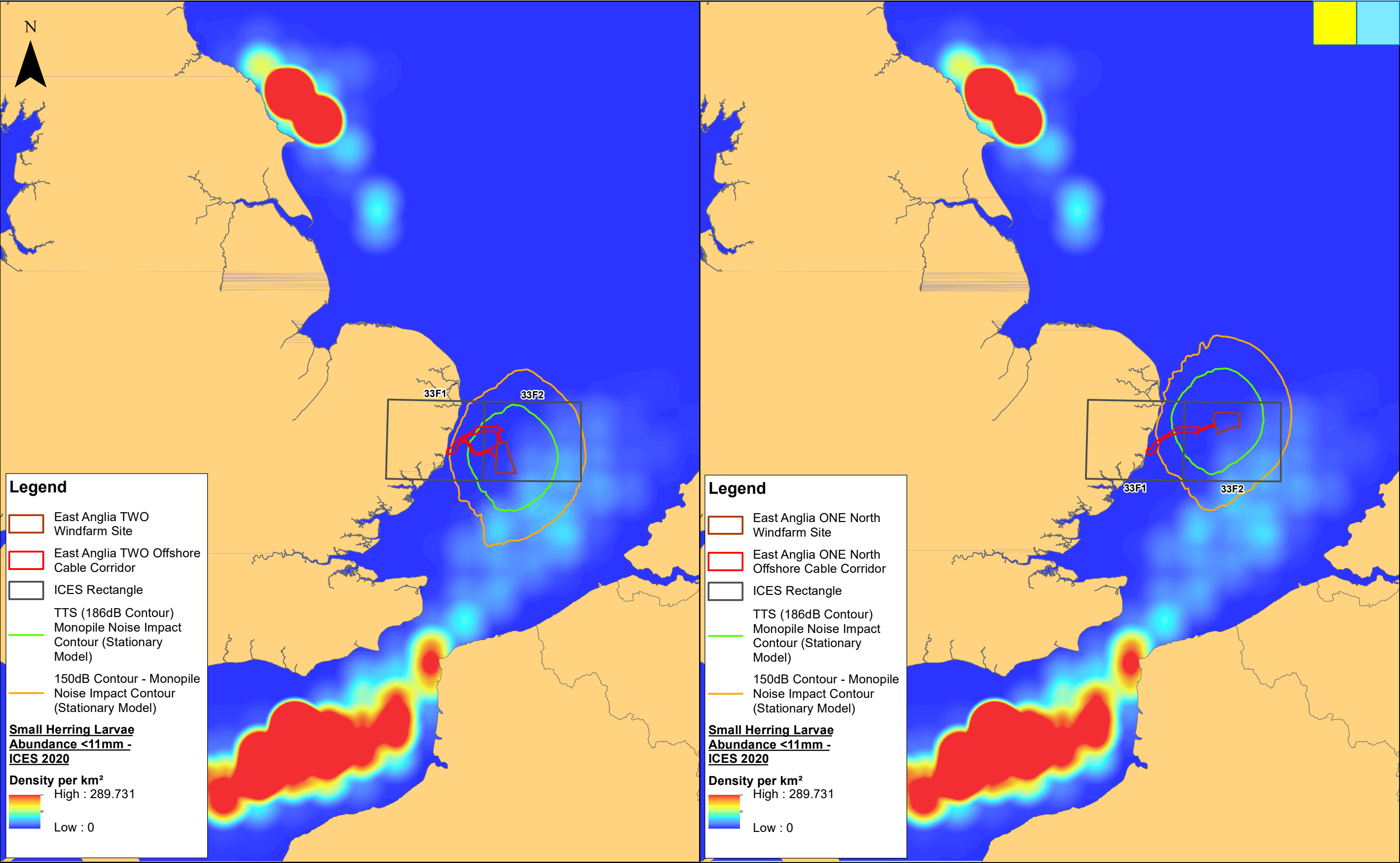




Point	MMO Comment	Applicants' Response
	The MMO requests that the applicant presents additional noise modelling depicting the behavioural noise contours based on monopiling for a stationary receptor.	<p>energy for a stationary receptor using monopiles. <b>Figure 1</b> below displays 10 years of IHLS data for the January surveys only mapped against the worst case noise impact (TTS 186dB) and the 150dB contour for a stationary receptor. <b>Figure 2</b> displays the same data but for monthly surveys throughout the entire 2007-2017 period.</p> <p>The 150dB contour extends to a maximum distance of 53.92km from the East Anglia TWO windfarm site and 54.41km from the East Anglia ONE North windfarm site.</p> <p>Taking account of the impact ranges presented in these figures, the overall short duration of piling and its intermittent nature, together with the fact that any effect associated with behavioural impacts would be temporary, the magnitude of effect is considered to be low. Therefore, an impact significance of minor adverse is anticipated. Herring would be at low risk from piling and therefore behavioural effects are not anticipated to result in an impact that would be significant and therefore given the locations of the Projects there would be no pathway to impede either migration. In addition, any mitigation measures to be implemented to reduce noise impacts for marine mammals would be expected to reduce the potential for effects on herring still further.</p> <p>The Applicants note that the MMO are liaising with their advisors Cefas on this matter who were requested to provide further information/maps on the movement patterns of spawning herring in the SNS.</p>



					1:2,500,000			<b>East Anglia TWO and East Anglia ONE North</b> IHLS Herring Small Larvae Abundance (January 2007 - 2017) in Relation to 150dB and Worst Case Noise Impact Contour (Stationary Model)			<b>Drg No</b>	EA1N-EA2-DEV-DRG-IBR-001101	
	2	05/01/2021	FC	Second Issue.	Prepared:	FC					<b>Rev</b>	2	Datum: WGS 1984 Projection: Zone 31N
	1	23/03/2020	FC	First Issue.	Checked:	KC					<b>Date</b>	05/01/21	
	<b>Rev</b>	<b>Date</b>	<b>By</b>	<b>Comment</b>	<b>Approved:</b>	<b>PP</b>					<b>Figure</b>	1	



					1:2,500,000			<b>East Anglia TWO and East Anglia ONE North</b> IHLS Herring Small Larvae Abundance (2007 - 2017) in Relation to 150dB and Worst Case Noise Impact Contour (Stationary Model)			<b>Drg No</b>	EA1N-EA2-DEV-DRG-IBR-001089	
	2	05/01/2021	FC	Second Issue.	Prepared:	FC					<b>Rev</b>	2	Datum: WGS 1984 Projection: Zone 31N
	1	19/02/2020	FC	First Issue.	Checked:	KC					<b>Date</b>	05/01/21	
	<b>Rev</b>	<b>Date</b>	<b>By</b>	<b>Comment</b>	<b>Approved:</b>	<b>PP</b>					<b>Figure</b>	2	



Point	MMO Comment	Applicants' Response
3.8.3	<p><b>Number 085 (EA2) and 081 (EA1)</b></p> <p>The MMO welcomes the Applicant's response. The ES acknowledged the limitations of delineating spawning grounds and recognised that the depiction of spawning ground can over or under-represent the true spawning habitat.</p> <p>The original comment was made to highlight that the MMO does not support the calculation of total spawning habitat for the purpose of quantifying the percentage of spawning area affected. The MMO wishes to highlight that attempting to quantify the percentage of an impacted area which is being over or under-represented will provide inaccurate and misleading figure.</p>	Noted
3.8.4	<p><b>Number 086 (EA2) and 082 (EA1)</b></p> <p>The MMO acknowledges the correction provided by the Applicant.</p>	Noted
3.8.5	<p><b>Number 087 (EA2) and 086 (EA1)</b></p> <p>The MMO welcomes this clarification that a separate Marine Licence will be required for UXO detonation during the O&amp;M phase. The MMO will review the updated Outline Offshore Operations and Maintenance Plan (OOMP) to be submitted at Deadline 3 and provide updates at Deadline 4.</p>	Noted
3.8.6	<p><b>Number 088 &amp; 089 (EA2) and 083, 084 &amp; 085 (EA1)</b></p> <p>The MMO believes the supporting evidence presented by the applicant clearly shows that the EA1N and EA2 sites contain suitable sandeel habitat and that sandeel are likely colonising and spawning in the area. Data from the scientific beam trawl surveys undertaken in the former East Anglia Zone and International Bottom Trawl Survey (IBTS) data both show that sandeel species are present.</p> <p>Furthermore, the sandeel habitat classification (MarineSpace 2013) determined that the EA1N and EA2 sites consist of 'preferred' and 'marginal'</p>	<p>The Applicants wish to note that they are not of the opinion that the area is unsuitable habitat for sandeel rather that the offshore development areas lie outside of the core areas of sandeel habitat identified in the studies considered.</p> <p>The Applicants requested at the December 18<sup>th</sup> 2020 meeting if the MMO could consider if project specific sandeel monitoring is proportionate to the potential impacts of the Projects given that the assessment within <b>Chapter 10 Fish and Shellfish Ecology</b> (APP-058) did not conclude impacts of greater than minor adverse</p>



Point	MMO Comment	Applicants' Response
	<p>sandeel habitat, suggesting that the sediment can be inhabited by sandeel and used for spawning.</p> <p>If the applicant is of the opinion that the area is unsuitable sandeel habitat, despite the data they have selected for use to support the ES indicating that it is, then they should present evidence to the contrary.</p> <p>The MarineSpace (2013) method is used as a proxy for more invasive, timely and costly methods of determining sandeel abundance e.g. a sandeel dredge survey. If the applicant feels that the MarineSpace method is not sufficiently robust then they should consider alternative methods /sources of data to support their demonstrate that the area is unsuitable sandeel habitat.</p> <p>Concerning the potential cumulative impacts on sandeel, as previously stated, we have noted the findings of Stenberg et al. (2015) on localised habitat losses as a result of OWFs. However, we highlight again that the wider habitat availability (or lack of) for sandeel resulting from multiple habitat losses from wind farm development across the North Sea has not currently been accounted for or monitored. We therefore maintain that pre- and post-construction sandeel habitat monitoring using the MarineSpace (2013) approach is necessary, in order to monitor the suitability of the EA1N and EA2 sites as sandeel habitat.</p>	<p>significance which is largely influenced by the fact that the Projects are not located within the core sandeel habitat areas and that the area suitable for sandeel is geographically extensive (see <b>Figure 10.41</b> (APP-169)).</p>
3.9	<p><b>Table 29 Number 090 Shellfish Ecology</b></p> <p>The MMO is content with the response by the Applicant and the inclusion of document AS-039 - Appendix 3: Fish and Shellfish Ecology Clarification Note. The applicant has provided the required information of the impacts of suspended sediment concentration (SSC) on Whelk and King Scallop populations at the proposed site. Appropriate data sources have been used to assess the impact. The MMO agrees with the conclusion that there will be no major significant effects caused by SSC on these species therefore no</p>	Noted





Point	MMO Comment	Applicants' Response
	specific mitigations are required in relation to the proposed project. and has no other concerns in relation to Shellfish.	
3.10	<p><b>Table 29 Number 091- 096 Commercial Fisheries</b></p> <p>The MMO welcomes the clarifications by the Applicant to the MMO comments raised at relevant representative stage. At Deadline 2 the MMO provided comments on the Fisheries Liaison and Cooperation Plan and will be continuing discussions with the Applicant on these matters.</p>	Noted the Applicants have responded in the <b><i>Applicants' Comments on MMO Deadline 2 Submissions</i></b> REP3-069 to the matters raised by the MMO at Deadline 2 which the Applicants consider resolve the outstanding matters raised by the MMO.
3.11	<p><b>Table 29 Number 097- 106 Underwater Noise</b></p> <p>The MMO is content that the comments and clarifications provided by the Applicant close out previous concerns raised at relevant representative stage. The MMO still has 4 outstanding areas of discussion:</p> <ul style="list-style-type: none"> <li>• The cumulative sound exposure level (SEL<sub>cum</sub>) assessment and number of piles installed in a 24-hour period.</li> <li>• The MMMP does not take into account the maximum potential permanent threshold shift (PTS) impact ranges for marine mammals;</li> <li>• The MMMP does not reference the most appropriate metric for assessing the potential impacts of UXO detonation, which is the peak sound pressure level (SPL<sub>peak</sub>) (rather than the single strike sound exposure level);</li> <li>• The MMO's recommendation that the received levels of the single strike sound exposure level at the herring spawning grounds should be modelled and presented, as well as presenting noise contours onto relevant spawning data.</li> </ul> <p>These are currently being discussed with the Applicant, a response to these comments is below.</p>	<p>The Applicants have provided responses as corresponding bullet points as follows:</p> <ul style="list-style-type: none"> <li>• See response to Point 3.11.1 below.</li> <li>• The MMMP (REP3-043) has been updated to consider SPL<sub>peak</sub> impact ranges out to 11.1km and therefore the Applicants consider this to be addressed.</li> <li>• See response to Point 3.3a above.</li> <li>• See response to Point 3.8.2 above.</li> </ul>



Point	MMO Comment	Applicants' Response
3.11.1	<p><b>Numbers 098 (EA2) and 095 (EA1N)</b></p> <p>The MMO thanks the Applicant for their response; however, it should be noted that the publication of the updated Conservation Objectives for the SNS SAC in March 2019 that the applicant is referring to does not supersede the EIA process, where each development and the risks to harbour porpoise, and other marine mammals, are reviewed on a case by case basis.</p> <p>Therefore, the MMO would expect the general noise modelling (underwater noise assessment) to consider the number of piles that are likely to be installed in a 24-hour period, and then base the cumulative noise exposure assessment on this.</p> <p>Undertaking further noise assessments for the SIP as proposed by the applicant is somewhat immaterial and doesn't address this particular concern. The potential impacts of piling noise on all marine mammal receptors still needs to be appropriately assessed.</p> <p>The MMO requests the Applicant to ensure that any general underwater noise modelling and assessments consider the maximum number of piles that will be installed in a 24-hour period. If more than one pile (monopile or pin pile) is anticipated to be installed within 24 hours, then the assessment (pile driving sequence) should account for this.</p>	<p>Modelling has been conducted for one pile at a time, in line with the Projects' commitment to no concurrent piling.</p> <p>There is the potential that more than one pile could be installed in the same 24 hour period (i.e. sequentially), however, there would be no further cumulative noise exposure. Marine mammals would have been disturbed from the area during the first piling event and therefore would not be at further risk of PTS (including PTS SEL<sub>cum</sub>) from the installation of the second pile as the marine mammals would have been disturbed already beyond the potential impact range of PTS. This is illustrated as follows:</p> <ul style="list-style-type: none"> <li>For harbour porpoise the maximum predicted range for PTS SEL<sub>cum</sub> impacts (for pin-pile with maximum hammer energy of 2400kJ) is 21km. Disturbance impacts would have a maximum predicted range based on the Effective Deterrent Radius (EDR) of 26km.</li> </ul> <p>Therefore, there is no reason to undertake further modelling. Note that with regard to effect upon the SNS SAC, multiple (i.e. sequential) piling events in a day would be considered spatially using the EDR as the metric in line with current guidance.</p>
3.11.2	<p><b>Number 105 (EA2) and 101 (EA1N)</b></p> <p>The MMO acknowledges the Applicant's submission of document AS-039 - Appendix 3: Fish and Shellfish Ecology Clarification Note has been provided for review. The MMO welcomes this information and will provided further comments at Deadline 4.</p>	<p>The Applicants were of the understanding that the MMO and Cefas have already reviewed AS-039 and the Applicants assume that, with the exception of matters regarding the behavioural impacts on spawning herring and the prevalence of suitable sandeel habitat (see rows 33.8.2 and 3.8.6 respectively), all matters are closed out.</p>
3.11.3	<p><b>Number 106 (EA2) and 102 (EA1N)</b></p>	<p>The Applicants welcome this clarification from the MMO.</p>



Point	MMO Comment	Applicants' Response
	<p>Please note that previous comments and recommendations are not contrary, they are context specific. The comment about the SPLpeak being the most appropriate metric to assess potential impacts was specifically made in relation to the assessment of UXO detonation. The new Southall (2019) and NOAA (2018) criteria consist of thresholds formulated using two metrics: the weighted cumulative sound exposure level (SELcum), and the SPLpeak. As highlighted in the original comments, the SPLpeak is the most appropriate metric to apply for the UXO modelling, since it better reflects the risk of instantaneous auditory injury. The risk of auditory damage depends on how high peak pressures get (and how rapidly they rise), which, out of the standard metrics available, is best reflected by the SPLpeak.</p> <p>The recommendation to model the received levels of the single strike sound exposure level at the herring spawning grounds is a separate issue (different context) altogether. This is looking at how we can best assess the risk of potential impact of piling noise on spawning herring.</p> <p>The MMO welcomes this information and will provide further comments at Deadline 4. Please note the MMO may ask the applicant to provide the additional modelling.</p>	
<b>5. Update on the Statement of Common Ground</b>		
3.14	<p>The MMO has been engaging in the statement of common ground process with the Applicant. Due to the ongoing discussions and knowledge that the Applicant will be submitting updated versions of the dDCO and plans and documents. It has been agreed that the Applicant will submit the SoCG at Deadline 4. The MMO and the Applicant have a meeting scheduled for 18 December 2020 to progress as many issues as possible.</p>	Noted