



THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES

2010

Sheringham Shoal Extension and Dudgeon Extension Offshore Wind Farms

Appendix A3 to the Natural England Deadline 8 Submission

Natural England's Further Response to 9.5 Offshore In Principle Monitoring Plan (Revision C) [REP7-030]

For:

The construction and operation of the Sheringham Shoal Extension and Dudgeon Extension Offshore Wind Farms located approximately 16km and 27km respectively from the Norfolk Coast in the Southern North Sea.

Planning Inspectorate Reference: EN010109

17th July 2023

Appendix A4 - Natural England's Comments on Sheringham Shoal Offshore Wind Farm Extension Project (SEP) and Dudgeon Offshore Wind Farm Extension Project (DEP) Offshore In-Principle Monitoring Plan (IPMP) Revision C [REP7-030]

1. Introduction

In response to our comments at Deadline 1 [REP5-090], Natural England welcomes the response and further updates by the Applicant to the Sheringham Shoal Offshore Wind Farm Extension Project (SEP) and Dudgeon Offshore Wind Farm Extension Project (DEP) 9.5 Offshore In Principle Monitoring Plan (Revision C) submitted at Deadline 7 REP7-030

Table 1 below sets out Natural England's further response to these comments and continued overarching concerns with the IPMP. Which are then discussed in more detail for each thematic area after the Table.

2. Summary

Natural England' advice provided at [REP5-090] in relation to the scope of an In Principle Monitoring Plan (IPMP) remains unchanged as we continue to have concerns with monitoring not being fully linked to outstanding risks and issues. Where IPMPs have been unclear on the survey requirements it has led to post consent monitoring disagreements and/or monitoring not being fit for purpose. Over the last 10 years the IPMP has become a key named DCO/dML document which effectively acts as an monitoring requirement agreement log. In addition, where it has been deficient, the default has been for monitoring to be minimal and not providing the required evidence to draw conclusions with confidence - which perpetuates potentially unnecessary monitoring requirements.

We also advise that it would be useful to build a review phase into the monitoring plan which on completion of the yet-to-be-agreed monitoring, to allow evaluation and discussion of the survey results with the MMO and relevant SNCBs. This will allow consideration of any further survey requirements and/or the requirement to undertake remediation actions. As set out in our DCO/dML comments at Deadline 7 and 8 we highlight that there is no commitment in the IPMP and/or the DCO/dML monitoring conditions to address any concerns raised as part of the monitoring

Natural England's detailed comments on the D7 Offshore In-Principle Monitoring Plan (IPMP) Revision C

ID	Natural England Comment (REP5-090)	Applicant's Response Deadline 7 updated IPMP	NE Advice Deadline 8	RAG
1	<p>Natural England advises that there is a misunderstanding between the Applicant and Natural England on the purpose of the IPMP and in providing our advice Natural England is drawing on our wealth of experience of post-consent monitoring discussions and implementation. This includes our advice for more recent IPMPs than Dogger Bank. We strongly advise that rather than focusing on the exact details of the surveys as highlighted by the Applicant in the updated IPMP; the IPMP should set out the fundamental hypotheses/questions that will be tested by the monitoring based on the outcomes of the HRA, EIA and address issues of uncertainty and/or residual impacts.</p> <p>In addition, Natural England highlights that, while there is agreement that IPMPs are finalised post consent based on project design and timescales; we do not agree that the approach taken for the Dogger Bank project is a standardised approach. Lessons have been learnt since the development of the IPMP for those projects, which are based upon ongoing and reoccurring post- consent disagreements with the developers on ecological monitoring requirements and survey effort required in order demonstrate key predictions of the</p>	<p>The 'fundamental hypotheses/questions that will be tested by the monitoring based on the outcomes of the HRA, EIA and address issues of uncertainty and/or residual impacts' are set out throughout the IPMP tables under the heading 'headline reasons for monitoring'.</p> <p>Where possible and appropriate to do so the Applicant has added further detail describing the potential hypotheses/questions that will be tested, subject to development of the detailed monitoring plans. However fundamentally the position remains that the document is only intended to provide a framework for further discussions post consent for the reasons already set out. This approach is consistent with the final IPMP submitted for EA1N/2 [REP8-028, document reference 8.13] for which the consent has been granted.</p> <p>For the sake of clarity, the Applicant's reference to Dogger Bank is only made in relation to the development scenarios and construction programme (since there are similarities with SEP and DEP in that regard) and not the approach to the</p>	<p>Please see our detailed comments included in this response for each of the thematic areas. We believe our comments highlights why there is a need to have common understanding of the post consent monitoring requirements at this stage, in order to avoid the issues raised in Natural England's Deadline 5 response.</p>	

	Environmental Statement and/or HRA.	IPMP in general.		
ID	Natural England Comment (REP5-090)	Applicant's Response	NE Deadline 8 response	RAG
	Our advice on the content of the IPMP for SEP and DEP is consistent with that provided for the EA1N and EA2 examination [REP5-086].			
2	Natural England is content to leave fine tuning of the IPMP to post- consent in relation to the build out scenarios only. However, we do expect all of our other queries to be considered within the IPMP and highlight the risks with not considering possible implications for monitoring from the various build out scenarios at the consenting phase, including additional survey campaigns. Natural England queries if the views of the MMO been sought as the regulator for the monitoring post- consent.	Refer to response at ID 1 above. With respect to the MMO, the draft Statement of Common Ground with MMO Revision B [REP3-078] confirms the MMO's position that "this in-principle document is appropriate".	As ID 1 above.	
3	Natural England does not agree with pushing the identification of key monitoring requirements to post consent. Many of the detailed discussions during pre-Application and examination are lost between examination and pre- construction such that the Applicant and regulators can only rely on the contents of the IPMP. It is our pre- construction experience across multiple projects, of monitoring requirements in which consent decisions are based, becoming open to challenge, and/or monitoring not being	Refer to response at ID 1 above.	As ID 1 above.	

	fully fit for purpose. Please see other responses provided within this response.			
ID	Natural England Comment (REP5-090)	Applicant's Response	NE Response Deadline 8	RAG
4	<p>Natural England notes that the additional text allows for adaptive management measures to be considered. However, the text does not provide the necessary assurances that adaptive management measures 'will' be undertaken and does not include commitments to ongoing monitoring that would be required should design changes and /or unforeseen impacts occur. The wording within the DCO monitoring condition should be updated such that the regulator can require further mitigation measures and monitoring thereof should it deem it necessary.</p>	<p>The Applicant considers that such an amendment would not be necessary or appropriate. If monitoring work identified a potential need for adaptive management or remedial measures, then the Applicant would discuss with the relevant parties (i.e. Natural England and the MMO) at the relevant time what an appropriate course of action would be. Such measures may themselves require a separate consent or agreement before they could be implemented (e.g. a marine licence for works to the seabed). It will therefore not necessarily be within the Applicant's power to immediately undertake such works and therefore it is not appropriate to seek to impose such a requirement through the DML.</p> <p>However, the Applicant is able to commit to undertake additional monitoring where it is identified that there is an additional need for it. The DMLs within the draft DCO (Revision J) [document reference 3.1] have been amended by adding a new subparagraph (6) to condition 20 of Schedules 10 and 11 and condition 19 of schedules 12 and 13 as follows:</p>	<p>Whilst we welcome the Applicant's commitment to undertake further monitoring where necessary, we do not agree that there is no need to also include the requirement to do adaptive mitigation/management.</p> <p>As stated previously our advice is based on our experience on multiple projects across all thematic areas, where the missing requirement has caused consternation and additional environmental impacts because an action can't be enforced if not cited on the DCO/dML. As set out in our comments on the updated DCO in our Deadline 8 response, Natural England strongly advises that the requirement to undertake adaptive mitigation/management and monitoring thereof is included within all monitoring conditions.</p> <p>We do however agree with the Applicant that the details of such measures and associated monitoring would be agreed at the time of identification.</p>	

		<i>“(6) In the event that the reports provided to the MMO under subparagraph (4) identify a need for additional monitoring, the requirement for any additional monitoring will be agreed with the MMO in writing and implemented as agreed.”</i>		
ID	Natural England Comment (REP5-090)	Applicant's Response	NE Response Deadline 8	RAG
5	<p>Natural England draws your attention to our previous responses. Natural England highlights that, while there is agreement that in principle monitoring plans are finalised post consent based on project design and timescales; we do not agree that the approach taken for Dogger Bank is a standardised approach.</p> <p>Lessons have been learnt since the development of the IPMP for those projects, which are based upon ongoing and reoccurring post- consent disagreements with the developers on ecological monitoring requirements and survey effort required in order demonstrate key predictions of the Environmental Statement and/or HRA.</p> <p>Our advice on the content of the IPMP for SEP and DEP is consistent with that provided for the EA1N and EA2 examination [REP5-086].</p>	Refer to response at ID 1 above.	<p>Natural England notes that the reference to Dogger Bank continues to be included on page 21 of the IPMP with no updates relating to the clarification as suggested at ID 1. Therefore, our advice remains unchanged.</p>	

ID	Natural England Comment (REP5-090)	Applicant's Response	NE Response Deadline 8	RAG
6	Natural England would wish to see the monitoring of the effectiveness of mitigation measures included as a hypotheses to be tested through monitoring.	<p>Reference to monitoring the effectiveness of mitigation measures has been added at Section 1.3 General Guiding Principles for the Proposed Monitoring. As such Natural England can be assured that this will be considered in the development of the detailed monitoring plans post-consent.</p> <p>However we would also note that monitoring of the effectiveness of mitigation is implicit in the outline proposals that have been developed. Where targeted monitoring may be required with respect to a specific mitigation measure the detail of this can either be agreed at the post- consent stage or has already been incorporated in the IPMP, for example for marine mammals: “<i>The purpose of this monitoring would be to research the behavioural response of marine mammals to different construction activities, including from mitigations (e.g. ADDs), in order to validate the conclusions of the ES and RIAA.</i>” (Table 7 of the IPMP).</p>	Natural England welcomes the commitment to monitor the effectiveness of mitigation measures. However, we wish to highlight that this commitment should preferably relate to those mitigation measures included within an updated mitigation schedule which reflects the outcome of issue resolution during examination.	
7	Noted and Natural England agrees with the update.	-	-	

ID	Natural England Comment (REP5-090)	Applicant's Response	NE Deadline 8 response	RAG
8	<p>We welcome the proposed monitoring for Cromer Shoal Chalk Beds Marine Conservation Zone (CSCB MCZ) including seabed level change and scour/secondary scour. However, we advise more detail is required.</p> <p>For ease of reference, Table 3 should be presented ahead of Table 4, or the table numbering could be amended.</p> <p>Natural England welcomes the inclusion of Table 3 which outlines a scope of work to support development of detailed plans for cable installation to maximise the chance of burial success for SEP and DEP (in the CSCB MCZ).</p> <p>We welcome the inclusion of sandwave/bank migration and recovery monitoring. We advise the hypothesis to be tested is outlined.</p>	<p>Tables 3 and 4 have been reordered as suggested and cross references updated.</p> <p>With respect to the general request for 'more detail' the Applicant refers to its response at ID 1 above.</p> <p>With respect to the sand wave / bank recovery and migration, a suggested hypothesis has been added to Table 3 of the IPMP. The Applicant's position is that the intent of the monitoring as set out is sufficiently clear for the purpose of the IPMP. As already explained in the response to REP1-136 (see Table 2 of the IPMP), because the proposal includes full sea bed coverage swath bathymetry, MBES and SSS surveys, the monitoring will provide a full understanding of the recovery of the physical form of the seabed following construction, in the same manner that has been achieved on the existing SOW and DOW (and which confirmed the absence of any significant effects).</p>	<p>Please see detailed thematic comments provided within this response.</p> <p>However, Natural England advises that since the consenting, installation and monitoring agreements of DOW and SOW, Natural England's advice on monitoring impacts which could hinder the conservation objectives of the site has evolved to reflect the updated SACOs. Therefore, we advise that the proposed suite of data is unlikely to provide a full understanding of the recovery as an assessment of benthic communities will also be required.</p>	
9	-	-		

ID	Natural England Comment (REP5-090)	Applicant's Response	NE Deadline 8 response	RAG
10	We welcome the proposed monitoring for Cromer Shoal Chalk Beds Marine Conservation Zone (CSCB MCZ). Including seabed level change and scour/secondary scour However, we advise more detail is required.	Refer to responses at ID 1 and 8 above.	Please see our response at ID1 and 8.	Red
11	Natural England's advice at Deadline 1 [REP1-136] in relation to undertaking fish surveys as secondary compensation measure and monitoring of fish availability for Annex I bird species will be required as this area is currently located in a foraging area for Sandwich terns remains unchanged.	The Applicant has updated Table 8 of the IPMP to include further detail on proposals for monitoring of Sandwich tern prey availability, which reflects the discussions between the Applicant, Natural England, MMO and Cefas during Examination (meeting on 23 February 2023).	Please see our detailed advice on the thematic areas.	Yellow
12 - 18	The Applicant has provided further information in the IPMP that was specifically requested in relation to marine mammals (presenting updated conclusions from the RIAA and ES; assumptions and knowledge gaps). They have also presented options that would evidence the impacts to marine mammals, and also demonstrate the effectiveness of mitigation. Nevertheless, as outlined in our response to the Offshore IPMP at Deadline 1 (see Paragraph 4), we consider that further detail is still required.	Refer to response at ID 1 above. Where possible and appropriate to do so the Applicant has added further detail describing the potential hypotheses/questions that will be tested, subject to development of the detailed monitoring plans.	Please see our detailed advice on the thematic areas.	Yellow
19	Noted, NE agree with the species listed.	No further action needed.	-	Grey
20	No further action needed.	-	-	Grey

ID	Natural England Comment (REP5-090)	Applicant's Response	NE Deadline 8 response	RAG
21-23	<p>We suggest it would be helpful to have a table setting out the quantified level of effect to the species under consideration (i.e., the number of collisions predicted for ST at NNC SPA, the number of collisions of GBBG, the range of displacement induced mortality for guillemot and razorbill at FFC SPA). We advise this compilation of values relevant to the monitoring should also refer to the level of compensation being offered (so in the case of ST and Kittiwake this should include the 95% CI), and/or be clearly linked to the integrity judgements reached by the Applicant and Natural England. This quantification should form the basis of an over-arching hypothesis for each species listed.</p> <p>Issues should be listed that contribute to the uncertainty for each species. As, an example for sandwich tern this may be - flight height, macro-avoidance (as CRM assumes no macro-avoidance in the case of ST), the AR etc.</p> <p>For Guillemot this may be - rate of displacement, mortality due to displacement, connectivity with FFC, number of adults present).</p> <p>For RTD this may be - level of extent of displacement due to arrays, , disturbance response to vessels.</p>	<p>The Applicant does not disagree with this suggestion, as such, but considers that this information would be more usefully provided when the final consented numbers for the predicted effects have become available.</p> <p>Therefore, it is proposed to provide the suggested table of predicted effects when the consented numbers are established.</p> <hr/> <p>The Applicant agrees with this suggestion to an extent only, as the purpose of the IPMP is to focus on the <i>key</i> uncertainties and facilitate the process of determining which are most appropriately addressed by a post-consent monitoring programme. The Applicant considers that the information provided in Table 8 provides this focus and that there is a limit to which additional detail will usefully add to this.</p> <hr/> <p>Therefore, text has been added to Table 8 which outlines some of the hypotheses associated with key</p>	<p>Natural England notes the commitment to include figures to the IPMP post consent, to help inform the success criteria which will enable monitoring requirements to be discharged.</p> <p>Please see out detailed comments on the thematic areas.</p>	

	<p>Hypotheses should be formed based on these uncertainties. For example; ‘Sandwich tern flight speed is as presented in Fijn and Gyemesi (2018)’ Proposals should be outlined that specifically address these hypotheses, noting that not all will be possible to be addressed by SEP and DEP.</p> <p>There will also be uncertainty regarding the level of impact to the population in question arising from the effect (in the case of integrity judgements based on population level impacts). For example - HPAI, survival and productivity rates, apportioning. These should also be clearly listed, and where possible hypotheses formed that describe the assumptions made to reach integrity judgements. Again, recognising that not all hypotheses can be addressed.</p> <p>It is important that the SEP and DEP post-construction monitoring supplements the existing work already being done in the area rather than conflicting with this. A summary of monitoring undertaken by DOW has been provided, which is welcomed; this is relevant to the development of a coherent and robust post-consent plan for SEP and DEP.</p> <p>However, we note there are many offshore windfarms with the Greater</p>	<p>uncertainties that could be tested for each ‘monitoring headline reason’ that is identified in the table.</p> <p>It should also be noted that for certain topics it is not particularly useful to try to frame the key uncertainties in terms of specific hypotheses. Rather, it is more practical to set out what the monitoring would actually seek to test or determine (e.g. in relation to displacement rates for the key species). Furthermore, for some issues identified by Natural England, project-level monitoring is highly unlikely to be a feasible route to addressing them (e.g. determining whether displacement results in increased mortality rates and, if so, the magnitude of such increases).</p> <p>On the topic of resulting population-level impacts, whilst it is recognised that there is uncertainty, it does not necessarily follow that this is a practical (or suitable) avenue for a project-level post-consent monitoring programme. Therefore, unless these issues relate directly to potential avenues for post-consent monitoring, the Applicant does not agree that it is useful to go into detail on these uncertainties in the IPMP. The relevant elements of this are already captured within Table 8 (e.g. by setting out what is feasible by way of monitoring of the relevant SPA</p>		
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	<p>Wash area, all of which have/or will have had post consent monitoring in place, and for many the focus will be on the same suite of species as relevant to SEP and DEP. For example, Race Bank is using Digital surveys to look at distribution changes and lidar to measure sandwich tern flight height, Triton Knoll is installing collision monitoring equipment and Lincs conducted a comprehensive survey regime to look at changes in distribution.</p> <p>Therefore, we advise that when developing the specific methodological proposals to address the hypotheses identified, it will be crucial to review the past and current post consent monitoring underway in the Greater Wash (and other projects of relevance further afield), along with all other relevant data sources (such as the Greater Wash SPA condition monitoring surveys).</p>	<p>Sandwich tern populations and by including possible options for the origins of kittiwake using the Project sites).</p> <p>In relation to the monitoring that is being, or will be, undertaken across the various wind farms within the Greater Wash area (and beyond), the Applicant agrees with Natural England that it will be essential for the SEP / DEP monitoring proposals to be developed within the context of this wider work and to aim to complement and build upon it.</p> <p>Therefore, the Applicant will seek to engage with Natural England in identifying monitoring proposals that address key uncertainties associated with SEP/DEP whilst most effectively complementing the monitoring that is being undertaken by these other projects.</p>		
ID	Natural England Comment (REP5-090)	Applicant's Response	NE Deadline 8 response	RAG
24	To clarify – Natural England has provided final positions on gannet at FFC SPA, kittiwake at FFC SPA, Sandwich tern at NNC/GW SPA (alone and in combination) and guillemot, razorbill and the seabird assemblage at FFC SPA	Noted	-	

(alone).	Natural England has yet to provide final positions on guillemot, razorbill and the seabird assemblage at FFC SPA in combination, RTD at GW SPA (alone and in-combination) and RTD at OTE SPA (in-combination). These positions are summarised in Table 2 of our Deadline 5 response.			
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Detailed Comments on the updated IPMP

1) 1.6.3 Marine Geology, Oceanography and Physical Processes

1. Structural integrity/scour

- i. We welcome the proposed approach to assessing scour and consideration of secondary scour. This should validate the ES predictions.
- ii. We note that in Table 3, a desk-based assessment will be carried out to identify the sample of adjacent wind turbines with greatest potential for scour. We advise that scour monitoring should not be limited to adjacent turbines but should consider an 'appropriate sample(s)' of adjacent turbines/cables and/or other infrastructure (e.g. OSP) locations selected according to their scour potential. It is important that the scour monitoring is targeted based on the different geological and hydrodynamic conditions across the study area and the different foundation types used. These variables need to be considered in the monitoring proposal.
- iii. Any significance of differences between modelled and recorded scour will need to be considered as part of the survey design and agreed with the MMO and relevant SNCBs.
- iv. In addition, given the potential for cable protection and/or discussions in relation to subcropping chalk monitoring of sediment mobility in the Holocene sand stretches along the ECC would be another requirement

2. Sandwave/sandbank recovery

- i. We welcome the proposed sandwave/sandbank recovery and migration monitoring, including consideration of changes to extent, elevation, and topography.
- ii. We understand that this monitoring will help test the hypothesis that sandwave/sandbank recovery occur (and migration continues) under natural processes as predicted in the ES. However, in the ES, it is also predicted that following sandwave levelling, sandwave recovery will take place over a short period of time. The anticipated timeframe for sandwave recovery against which observed recovery rates will be compared is unclear (i.e., what is a 'short period of time'?) We advise that post-construction surveys should have sufficient spatial coverage, duration, and frequency to sufficiently cover anticipated sandwave recovery rates and timeframes following sandwave levelling/lowering.
- iii. A further ES conclusion to validate is the prediction that sediment removed during construction stays within the overall sediment transport system. Therefore, we

advise that the proposed monitoring should aim to validate predictions of short-term sandwave recovery following dredging and no net loss of sand from the site following levelling.

3. Sediment mounds in shallow water

We advise that project specific temporal and spatial changes in marine process from the presence of drill mounds and/or seabed preparation works should be monitored

4. Monitoring timeframes

We note in the fourth column 'Details' of Table 3, that surveys will be carried out '*for up to 3 years post-construction, which could be non-consecutive years, with the provision of the agreed reports in the agreed format in accordance with the agreed timetable...*' We welcome flexibility in the monitoring programme regarding the potential 3 years of post-construction surveys, however, regarding the timing of subsequent years of surveys, we would advise that this should be based on the findings of the survey data collected. However, the timing and frequency of the initial 3 years of surveys should be agreed with the MMO (e.g., 1, 3 and 6 years or 1, 5 and 10 years etc). We advise that when evidence of recovery is recorded and agreed with the MMO and relevant SNCBs, monitoring can then cease.

2) Table 4

It remains unclear how this relates to site specific monitoring requirements and therefore how it relates to interested parties concerns in relation monitoring requirements

3) 1.6.5 Benthic Ecology

1. Whilst we welcome commitment to monitor condition and recovery post cable installation in areas of *Sabellaria spinulosa* this should also be the case for all interest features in the MCZ.
2. We advise that monitoring of the Exit pit locations should demonstrate that subtidal sand habitats are maintained and not primarily focus on colonisation of the cable protection.
3. We advise that if cables are installed in shallow sediment veneers that monitoring is undertaken to ensure ecosystem functionality is not affected.

4) 1.6.6 Fish Ecology

1. We advise that monitoring of fish ecology should also be able to demonstrate that there is no change in prey availability from the construction of the OWF

5) 1.6.7 Marine Mammals

Natural England advises that any construction monitoring for seals during construction should be testing that mitigation measures are effective at reducing impacts on seals to acceptable levels, with a particular focus on harbour seals within or from the SAC.

6) 1.6.8 Ornithology

The latest revision has done little to address our over-arching comments (see ID 21-23). The IPMP identifies the key impacts (collision, displacement and prey availability) and the focal species, and presents a number of useful, potential or possible monitoring suggestions. However, NE still have fundamental concerns relating to the detail and objective/hypothesis setting presented within the IPMP, which are necessary to secure confidence in the actual monitoring that will be undertaken. And while we consider agreement on the IPMP is a consenting must, the Applicant has deferred this detail to post-consent. As a result NE does not see any benefit in providing commentary on the options presented at this stage.