

Norfolk Boreas Offshore Wind Farm

Consultation Report

Appendix 13.6 MMO letter in response to Benthic and Contaminant sample analysis report

Applicant: Norfolk Boreas Limited
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Pursuant to APFP Regulation: 5(2)(q)

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Photo: Ormonde Offshore Wind Farm

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PLANNING ACT (2008). REVIEW OF BENTHIC ANALYSIS UNDERTAKEN FOR NORFOLK BOREAS OFFSHORE WINDFARM CHARACTERISATION.

Reference Number: DCO/2017/00002

From: Cefas, Lowestoft Laboratory
Date: 1st November 2017
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To: Laura Opel, Ellie Noble - MMO (by e-mail)
Cc: Denise Goldsmith SEAL Case Officer

1. With reference to the above report for Norfolk Boreas Offshore Wind Farm by Vattenfall Wind Power Ltd and your request for comments dated 24th October 2017 please find my comments below in my capacity as advisor on marine ecology.
2. This minute is provided in response to your advisory request in relation to the above proposal in my capacity as scientific and technical advisor for benthic ecology/. The response pertains to those areas of the application request that are of relevance to this field. This minute does not provide specialist advice regarding marine processes, fish and fisheries, shellfisheries, or underwater noise as, whilst these are within Cefas' remit, they are outside my area of specialism.

Document (s) reviewed

3. Appendix 1 Approach to Benthic Sampling.pdf (2017) Royal HaskoningDHV for Vattenfall Wind Power Ltd
4. Boreas_Benthic and Contaminant survey results.pdf (2017) Royal HaskoningDHV for Vattenfall Wind Power Ltd

Description of the proposed works

5. A survey (Zonal Environmental Appraisal (ZEA)) of the East Anglia Zone was originally conducted in 2010-2011 (98 grab and DDV samples collected within the Norfolk Boreas Array area). A power analysis was undertaken by APEM in 2012, using the ZEA data, and concluded that the number of samples were more than adequate to provide a robust baseline from which to detect spatial changes in benthic habitats and communities. However, assuming a DCO application submission in 2019, it was suggested by Vattenfall that, due to the age of the ZEA data, additional samples should be taken to determine whether the communities are temporally stable. This would confirm whether the ZEA samples are still valid for use in the characterisation of the site or whether further sampling would be required.
6. As no contaminant samples were collected during the ZEA, contaminant sampling was also proposed to be undertaken at Norfolk Boreas.
7. It was agreed with MMO and Cefas that additional epifaunal trawls were not required.
8. Vattenfall Wind Power Ltd conducted a survey in August 2017 collecting 35 grab samples for fauna, sediment and contaminant analyses within the Norfolk Boreas Array. Drop down video



was also employed at each of the grab locations to determine the presence/absence of Annex I habitats such as *Sabellaria spinulosa* reef. An assessment of reefiness, following Gubbay (2007), was used to determine whether the *S. spinulosa* observed would classify as Annex I habitat.

9. As agreed with MMO and Cefas, an initial 10 samples representing potentially different habitats were analysed for fauna and PSA, with 10 samples also analysed for contaminants. The analysis presented in the document in paragraph 4 concludes that benthic infaunal communities are very similar in 2011 and 2017 and therefore recommends that further analysis of the remaining samples collected is not required. Contaminant levels were generally below Cefas Action Level 1. Two sites exceeded Action level 1 for arsenic but were below Action Level 2.
10. I have not provided advice on the contaminant results as this is outside my area of expertise.

Question 1: Was the methodology used to collect samples appropriate and the same as authorised?

11. Yes, the samples were collected as intended and using appropriate methodologies.

Question 2: Are you content that sufficient samples have been analysed?

12. No, further analyses are required. See reasons below,
13. The report does not present the results of the particle size analyses. This information is needed to confirm that the sediments are similar between the two time periods.
14. The new data (collected in 2017) has been compared with all the ZEA data by composition according to major taxonomic group and using multivariate analysis. The dataset contains over 300 samples extending over a wide area, this has resulted in a high stress in the MDS ordination, the results of which should be viewed with caution (as clearly stated in the report). A cluster analysis was carried out to determine benthic community groupings although the similarity cut off was determined at only 20%. This is an extremely low similarity level to use to determine whether the communities sampled in 2017 are comparable to those sampled in 2010/11. It is not clear in the analysis presented whether the 2017 samples cluster closer to the samples within the Array or with samples further away, as the cluster dendrogram was not provided in the report due to its size.
15. At the meeting in February, Cefas asked for additional analyses using the ZEA data only collected within the Norfolk Boreas Array along with the newly collected data. This suggestion was to reduce the number of data points, and hence potentially reduce the stress value of the MDS (which reflects ability to interpret patterns). This should also allow increased similarity levels between communities to be observed more easily and for plots such as dendrograms to be included. The SIMPROF routine could also be used to determine similarity due to the reduced numbers of samples. Without these analyses it is difficult to see whether the new data is comparable to the 2010-11 data. The report does not currently present this analysis.

Question 3: Based on the analysis do you feel any mitigation needs to be secured in the licence? If so please provide details

Major comments

16. The drop-down video survey undertaken in 2017 identified two areas containing *Sabellaria* reef structures, however the reef was not determined as Annex I reef as it was not classified as 'medium' or 'high' reef (using the Gubbay, 2007 criteria). Please can the developer provide a reference for the justification that only 'medium' or 'high' reefiness structures should be classified as Annex I reefs.

17. The Gubbay criteria does not include guidelines on how to combine the separate measures of reefiness. Please can the developer also provide further information on how each of the Gubbay criteria was weighted to give the overall assessment of 'low', 'medium' and 'high' reefiness.
18. As reef structures were observed in several areas in both 2010/11 and 2017 within the Array, mitigation to avoid these areas needs to be included in the licence.

Minor comments

19. The reference for footnote 1 in paragraph 36 of document 4 is missing. Please include this reference in the revised report.
20. Paragraph 41 of document 4: The percentage composition of major taxonomic groups between data sources needs to be revised as Crustacea should be included within the Arthropoda category.
21. Plate 3.4 and 3.6 do not represent the same 2-dimensional MDS ordination therefore are not comparable. Please revise so that they represent the same orientation.

Summary

22. Further analyses of the data are needed to ensure that the samples are comparable between the two survey periods within the Norfolk Boreas Array.
23. Comparisons of PSA between the two time periods needs to be presented in the report.
24. The reference that was used to determine that reef should only be classified as Annex I only if medium or high, according to Gubbay, 2007, needs to be included in the report.

Jackie Eggleton
Benthic Ecology Advisor

<i>Quality Check</i>	<i>Date</i>
Andrew Griffith	06/11/2017