From:	Jacqui Miller
To:	norfolkvanguard@pins.gsi.gov.uk
Subject:	RSPB submissions at Deadline 9
Date:	06 June 2019 22:01:11
Attachments:	RSPB Submission at D9 Summary of Position.pdf RSPB Submission at D9 Note on Precaution.pdf

Dear Sir/Madam

Please find attached the RSPB's submissions for Deadline 9.

I would be grateful if you could confirm receipt of these submissions.

Kind regards

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Conservation Officer
RSPB Eastern England

Planning Inspectorate Ref: EN010079

Registration Identification Ref: 20012785

Re: Application by Norfolk Vanguard Limited for an Order Granting Development Consent for the Norfolk Vanguard Offshore Wind Farm

RSPB summary of final position at Deadline 9: 6th June 2019

The RSPB's comments below represent our final position at the end of the examination.

Impacts from the project alone

The RSPB welcomes the progress that has been made regarding the mitigation of collision mortality throughout the examination. We acknowledge that the proposals to remove the 9MW turbine option, to optimise the layout of turbines between Norfolk Vanguard East and West and to raise the draught height of the turbines by 5m have resulted in significant reductions in potential collision risk to key species from the project alone, when compared with the figures presented at the beginning of the examination (although we note that further mitigation would be possible by raising the draught height further). We therefore agree that **the project will not result in adverse effects on the integrity** of any SPA feature or result in significant impacts at the EIA level when considered **alone.**

Collision risk from the project in-combination and cumulatively with other projects

However, the RSPB considers that **adverse effects on the integrity of the following sites and features exist** as a result of predicted collision mortality from this project **in-combination** with other plans and projects:

- The gannet population of the Flamborough and Filey Coast SPA when mortality from Hornsea Project Three is included;
- The kittiwake population of the Flamborough and Filey Coast SPA *irrespective of whether mortality from Hornsea Project Three is included;*
- The lesser black-backed gull population of the Alde-Ore Estuary SPA (noting there is no contribution from Hornsea Project Three to the in-combination impact).

We also consider that cumulative (EIA) collision risk impacts on kittiwake and great black-backed gull are significant.

Whilst we acknowledge the reductions in predicted collisions achieved for the project alone through mitigation, we agree with Natural England's comments at Deadline 8 that the project still makes a 'meaningful contribution' to cumulative and in-combination collision risk[1].

[1]Para. 1.2, Natural England's Comments on Norfolk Vanguard Ltd. Deadline 7 and Deadline 7.5 submissions in relation to Offshore Ornithology Related Matters

Displacement from this project in-combination and cumulatively with others

Based on the Applicant's Auk Displacement Assessment Update provided at Deadline 8, we consider that **adverse effects on the integrity of the following sites and features exist** as a result of predicted displacement from this project **in-combination** with other plans and projects:

- The razorbill population of the Flamborough and Filey Coast SPA when mortality from Hornsea Project Three is included;
- The guillemot population of the Flamborough and Filey Coast SPA when mortality from Hornsea Project Three is included.

We also consider that cumulative (EIA) displacement impacts on red-throated diver, guillemot, razorbill and puffin are significant.

Impacts on the seabird assemblage feature of Flamborough and Filey Coast SPA

We note, as advised by Natural England, that a breeding seabird assemblage (comprising kittiwake, gannet, guillemot and razorbill, northern fulmar, Atlantic puffin, herring gull, European shag and great cormorant) is a designated feature of this SPA but that a detailed assessment of impacts on this feature has not been carried out. However, given the level of in-combination collision risk to kittiwake (irrespective of whether Hornsea Project Three figures are included) and collision risk to gannet and displacement to razorbill and guillemot (when Hornsea Project Three mortality is included) effects on the abundance of this feature are likely to result.

We therefore consider that it is **not possible to rule out adverse effects on the integrity** of the following feature from this project **in-combination** with others:

- The breeding seabird assemblage of the Flamborough and Filey Coast SPA

Conclusion

As stated in our response at Deadline 7, this project can only be granted consent if, subsequent to the Examining Authority's report, the Secretary of State is convinced that it will not have an adverse effect on the integrity of the European sites and their species concerned, having applied the precautionary principle and taken account of the conservation objectives for those sites and their habitats and species. *Waddenzee* confirmed that where doubt remains as to the absence of adverse effects on the integrity of the site, approval should be refused[2], subject to the considerations of alternative solutions, imperative reasons of overriding public interest and the provision of compensatory measures as set out in regulations 64 and 68 of the Conservation of Habitats and Species Regulations 2017.

[2] CJEU Case-127/02; [2004] ECR-7405 at [56]-[57].

Planning Inspectorate Ref: EN010079

Registration Identification Ref: 20012785

Re: Application by Norfolk Vanguard Limited for an Order Granting Development Consent for the Norfolk Vanguard Offshore Wind Farm

RSPB response to the Applicant's Deadline 8 submission 'Precaution in ornithological assessment for offshore wind farms'
Submitted at Deadline 9: 6th June 2019

Introduction

This note is a response to the submission by the Applicant to Deadline 8 of Document Reference: ExA; AS; 10.D8.8. In that document the Applicant has argued why they think the current approach to assessment of offshore wind farm developments is overly precautionary. Many of the arguments presented to support that position are unjustified and in this note the RSPB will demonstrate why the approach taken is not overly precautionary, rather is a measured and reasonable response to the considerable uncertainty inherent in the assessment procedure.

The precautionary principle

The precautionary principle exists for situations where scientific data does not exist or is incomplete and therefore it is not possible to complete a full evaluation of the possible risks a plan, project or activity may cause to the environment, including possible danger to humans, animal or plant health, or to the environment in general. The European Commission's Precautionary Principle guidance[1] states that it should apply when a phenomenon, product or process may have a dangerous effect, identified by a scientific and objective evaluation, if this evaluation does not allow the risk to be determined with sufficient certainty. As such the degree of precaution applied to an evaluation, or assessment, can be seen to be directly proportional to the extent of scientific uncertainty inherent in that assessment. As the guidance goes on to recommend, "The implementation of an approach based on the precautionary principle should start with a scientific evaluation, as complete as possible, and where possible, identifying at each stage the degree of scientific uncertainty."

Uncertainty

As there can be "almost as many definitions of uncertainty as there are treatments of the subject"[2], following Masden *et al* (2015), here we define it as a lack of knowledge, or incomplete information about a particular subject. Masden *et al.,* identified a hierarchy of uncertainty in offshore wind farm assessment. This included not only the uncertainty arising from scientific knowledge, as argued by the

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52000DC0001&from=EN
[2] Argote, L. (1982). Input Uncertainty and Organizational Coordination in Hospital Emergency Units. *Administrative Science Quarterly, 27*(3), 420-434. doi:10.2307/2392320

Applicant, but uncertainty arising more strategically from the process of assessment itself such as uncertainty within language and decision-making. Included within this process uncertainty can be considered anything that increases the difficulty in reaching firm and robust conclusions such as revisions in modelling approaches, late submissions, overly complicated language and unsupported arguments put forward as evidence. As such, the approach taken by the Applicant throughout the examination, and as evidenced below, is one of increasing uncertainty rather than reducing it. As the degree of precaution is proportional to the degree of uncertainty, such an approach increases the need for precaution in the assessment, and unfortunately in our view, the Applicant's Deadline 8 precaution submission, further increases this uncertainty. The reasons are described below.

Density and Abundance

Following Masden *et al.,* (2015) Natural England request that an indication of uncertainty is given around estimates of abundance – a request that the RSPB strongly supports. This means that although there may be insufficient scientific knowledge for an estimate to be made with full confidence, as uncertainty is inherent in all scientific research, providing an indication of the extent of this uncertainty provides a measure of confidence that greatly assists any decision making. This point is made by Millner-Gullard & Shea, (2017) as follows: "In order to manage uncertainty it must first be acknowledged and identified".

However, the Applicant argues in section 2.1 of its Deadline 8 precaution submission, that the 95% confidence intervals requested by Natural England to give the indication of uncertainty, are inappropriate as they are influenced by only one year's data and use of the mean is more appropriate. This misinterprets the advice given by Natural England, which is that the means are used in the overall assessment, but confidence intervals also need to be presented to allow *consideration* of the variability (and therefore the uncertainty) in the underlying annual population estimates. This ensures confidence in any conclusions can be expressed, but does not affect the actual conclusions, which should of course be based on the means (or other measure of central tendency). This is an entirely appropriate method and not in any way over precautionary. Not to express this uncertainty, as the Applicant seems to advocate, would not be consistent with European Commission Guidance on the Precautionary Principle - by not identifying and highlighting uncertainty the need for precaution could therefore increase.

Collision Risk Modelling

This same argument is used by the Applicant in section 2.2 to say that the assessment is over-precautionary in terms of collision risk modelling as Natural England have requested the 95% confidence intervals to be presented. Again, these are only used, quite correctly, to inform the confidence around the assessment, by giving a necessary indication of uncertainty. This is made clear in the conclusions given by Natural England at Deadline 3, as follows:

> "From Table 1 below, we note that all the central CRM predictions equate to less than 1% baseline mortality of largest BDMPS for all species. This is also the case for the upper 95% confidence intervals of the bird density for all species except great black-backed gull (GBBG), where the predicted CRM figures of 410 equates to 2.43% of baseline mortality of the largest BDMPS for all turbines in Vanguard

East and 0.94% of baseline mortality of the biogeographic population. Therefore, based on these figures we conclude that the collision risk from Vanguard alone would have no significant impact at the EIA scale for all species, although this conclusion can only be made with low confidence regarding impacts on GBBG at Vanguard East."

As such we support Natural England's approach, and argue that by following their advice in quantifying and expressing uncertainty, confidence in the assessment would be increased, leading to a reduction in the need for precaution. Therefore, their recommended approach is not in any way over-precautionary. The Applicant further argues that the use of their own stochastic version of the collision risk model would have reduced uncertainty. However, by relying on a model version that is untested, without peer-review, or the opportunity for review by either Natural England or the RSPB, the Applicant effectively *reduces* confidence in its outputs, thereby *increasing* uncertainty and consequently the need for precaution.

Headroom (Cumulative Impacts)

For section 2.3, the Applicant relies on a report commissioned by the Crown Estate. This report, which was not designed for use in an assessment, was flawed for a number of reasons, given below:
The approach taken in the report is counter to the principles of sustainable development. The industry should be aiming to achieve maximum capacity for least environmental effect, not simply looking to fully exploit the available environmental capacity – as they see it. The report implies that the calculated 'headroom' for each species is simply expendable. As would be expected we strongly disagree with this proposition, especially when considering protected species. A more appropriate approach would be to simply present the re-established cumulative totals, without referring to any available headroom. It is for the decision-maker to make the decision as to whether predicted impacts of any future proposals are acceptable.

The report is limited as it does not take account of potential impacts from displacement and emerging concerns regarding barrier effects of migratory birds that are largely unexplored, but which are becoming increasingly important due to the scale of development that has and is planned to be deployed.

The report assumes that predicted impacts of consented development were acceptable and still are acceptable and are using the consented impacts as thresholds. They should not be used for this purpose. Assessment methodologies and improvements in understanding of seabird ecology are developing all the time whilst new marine areas are being identified as important and the need for their protection recognised. This new knowledge and understanding is not accommodated within the report. For instance, there is no clarity on the accuracy of the underlying baseline data sets, uncertainties within the modelling and expression of confidence intervals for the outputs of those models.

Perhaps most importantly, a number of assumptions are stated throughout the report in a discursive manner, the majority or all stating that existing methodologies of assessment are precautionary and that impacts are likely to be smaller (which is not always demonstrated to be true, for example Bowgen

and Cook, (2018), and Wischnewski *et al.,* (2018). There also exist considerable inaccuracies throughout the report that we could comment on separately. Taking these two points together there exists the risk of raising expectations amongst the intended audience in the absence of any evidence and which could be unfounded. This report simply emphasises the point that adequate monitoring is required to provide an evidence base to inform future assessment and consideration of cumulative/in-combination impacts.

Therefore, the RSPB do not agree that this report should be used as part of the consideration of this application.

The Applicant also suggests that the criticisms made under section 2.2 of its Deadline 8 precaution submission, regarding the use of confidence intervals in collision risk modelling are also applicable for in-combination assessments. None of the assessments in the list of in-combination projects used the upper confidence limits for conclusions of mortality and so this has no bearing on the precautionary nature, or lack of, in the in-combination assessment. Again, by presenting information in a confusing and contradictory manner, the Applicant is increasing the uncertainty around the assessment and thereby increasing the need for precaution.

Displacement

In Section 2.4 of its Deadline 8 precaution submission, on displacement, the Applicant repeats their assertion that 95% confidence limits are used to reach conclusions of displacement impact by Natural England, despite, quite correctly, their use being restricted to expressing confidence in the conclusions reached by using the central measure or mean. Again, we support Natural England's approach, and argue that by quantifying and expressing uncertainty it increases confidence and therefore reduces the need for precaution. As such the approach is not in any way over-precautionary.

In paragraph 24 of this section the Applicant claims there is "very little evidence" that displacement extends over distances as large as 2-4km, the buffer size recommended by Natural England. However, while there is a large amount of variation in the displacement distances reported in the literature, displacement has been recorded up to 12km[3] from a wind farm. As such the Applicant's comments are entirely misleading. The use of such misleading comments has the effect of increasing the uncertainty within the assessment process.

The Applicant further argues, correctly, that displacement rates are based on evidence from studies carried out at older wind farms and that these had smaller, more closely spaced turbines. However, the argument is then made, without evidence, that displacement will be reduced with modern turbine design, where the turbines are spaced further apart and are considerably larger. Notwithstanding the lack of evidence for this assertion it intuitively seems very unlikely that larger turbines will cause less displacement. It would be more far more likely that greater displacement would arise. Again, the use of

[3] Mendel, B., Schwemmer, P., Peschko, V., Müller, S., Schwemmer, H., Mercker, M., & Garthe, S. (2019). Operational offshore wind farms and associated ship traffic cause profound changes in distribution patterns of Loons (Gavia spp.). *Journal of environmental management*, *231*, 429-438.

these speculative and counter-intuitive arguments has the effect of increasing the uncertainty within the assessment process.

Seasonality

In section 2.5. the Applicant details their perception of precaution in the definition of seasonality. In support the Applicant cites Furness (2015) a report commissioned with the specific aim to "review and define species-specific non-breeding season seabird populations maximum ranges". As part of the report, seasons were defined where there was spatial overlap between breeding and migrating birds. As such it is clear by definition that these periods include breeding birds. However, the Applicant argues that this is not the case for Norfolk Vanguard for several reasons including that the maximum foraging ranges presented by Thaxter *et al*. (2012) represent unusual situations that could not be sustained as typical values by breeding seabirds. This is not the case as these foraging ranges are derived from small samples of birds for constricted periods of time, and as the amount of data from tracking studies increases, carried out with more individuals, more colonies and over greater periods of time, the distances recorded are likely to increase, as has been shown to be the case with kittiwake[4].

The Applicant further argues that the density of breeding adults declines rapidly with distance offshore from colonies and is likely to be extremely low beyond 100km. It is not true that density simply decreases with distance from colony. While there will be an area of high density around the colony, there will be foraging hotspots, associated with prey density and other factors. As kittiwake have been recorded foraging 324 km from breeding colonies the entirely arbitrary 100 km figure is unsupported. It is concluded by the Applicant that the assumption that all birds present in March, April and August are breeding birds makes a large difference to the assessment but has little support from the available evidence. While it is true that there is little evidence that *all* birds present are breeding, there is evidence that some are breeders, as implicit in the definition of these periods by Furness (2015) as periods of overlap (between breeding and migration). The Applicant's alternative approach, of excluding all these birds as non-breeders, is equally unsupported by evidence as all birds being breeders. It is such situations, where there is a lack of evidence, that the precautionary principal must be applied, and in this circumstance the precautionary approach is the approach advocated by Natural England.

Density dependence

The RSPB agree with the Applicant that there is strong evidence for density dependence acting on the kittiwake population of the UK, and that the mechanisms remain unknown. We further agree with Furness *et al.* (2013) who recommended the use of density independent PVA outputs, saying "In such circumstances the most robust approach is to avoid the temptation to include density dependence, since it is often based on the premise that 'it must be operating therefore it must be included', even if the mechanism is unknown". Since the publication of Furness *et al.* (2013), there has been no new evidence describing density dependence with sufficient accuracy to include in models. Indeed, almost all

[4] Wischnewski, S., Fox, D.S., McCluskie, A. and Wright, L.J. 2018. Seabird tracking at the Flamborough & Filey Coast: assessing the impacts of offshore wind turbines. Pilot study 2017 Fieldwork report & recommendations. RSPB, Sandy.

the references cited by the Applicant in support of the use of density independent models predates the publication of Furness *et al.* (2013).

In addition to Furness *et al.* (2013), more recent guidance is available. The Joint Nature Conservation Committee commissioned a review which recommend the use of density independent PVA (Cook and Robinson 2016), and a Marine Science Scotland commissioned review also recommended the same approach (Jitlal *et al*., 2017). In the JNCC review, Cook and Robinson (2016) also highlighted that using a density independent model is not necessarily the most precautionary approach.

As such, the RSPB support the position of Natural England with regard to the use of the density independent model and disagree with the Applicant that this is an overly precautionary approach. It is not the most precautionary approach, rather it is the most scientifically robust.

Conclusion

In presenting a review of precaution in assessment of offshore wind farms the Applicant, rather than reducing uncertainty has instead increased it. This is because the approaches taken, and information submitted have misrepresented the position of Natural England, advocated the use of a model version that is untested, un-peer-reviewed nor been subject to any scrutiny, relied on partial, incomplete or flawed evidence and set itself against guidance derived from the consensus of the Statutory Nature Conservation Bodies and the scientific community (as well as the European Commission). As such, it increases the need for precaution in the assessment and does not alter the view of the RSPB with regard to the potential for adverse effects on the integrity of protected sites and their species as a result of predicted mortality from this project in-combination with other plans and projects.