



Written Submission
for the
Royal Society for the Protection of Birds
Annexes 4 and 5

20 August 2021

Planning Act 2008 (as amended)

In the matter of:

**Application by Norfolk Boreas Limited for an Order
Granting Development Consent for the Norfolk Boreas Offshore Wind Farm
Consultation on further information published 9 July 2021**

**Planning Inspectorate Ref: EN010087
Registration Identification Ref: 2002291**

Annex 4: Extract from REP11-127 East Anglia One North and East Anglia Two examination: the RSPB's responses to the Examining Authority's Third Round of Written Questions: answer to Question 3.2.5

Examining Authority question 3.2.5

Cumulative and in-combination collision risk: Hornsea Project Three contribution

In [REP8-171], the RSPB states that it does not agree with the Applicants that the in-combination annual kittiwake collisions apportioned to the FFC SPA should exclude the estimated collisions at Hornsea Project Three because the adverse effect arising from Hornsea Project Three will not be avoided and because it considers the effectiveness of the Hornsea Project Three compensatory measures to be “*highly uncertain*”. Conversely, Natural England [REP8-166, answer to R17QB.12] agrees with the Applicants' approach, stating that the SoS decision is clear that the impacts from Hornsea Project Three will be fully compensated for.

- a) Does the RSPB maintain the view expressed in [REP8-171]? If so, please could you elaborate on the reasons for your position?
- b) Specifically, whilst noting your position that the collision risk impacts from Hornsea Project Three will not be avoided, if the H3 collision risk impact on kittiwake is fully compensated for, please explain why you consider it to be appropriate to include that impact in the in-combination and cumulative assessments?

RSPB answer

Combined response to questions (a) and (b)

The RSPB maintains its position that the in-combination annual kittiwake collisions apportioned to the Flamborough and Filey Coast SPA (FFC SPA) should not exclude the estimated collisions at Hornsea Project Three. This is because the adverse effect arising from Hornsea Project Three will not be avoided and because it considers the effectiveness of the Hornsea Project Three compensatory measures to be “*highly uncertain*”.

Below we summarise our reasons in maintaining this position under the following headings:

- The adverse impacts of Hornsea Project Three on the FFC SPA will not be avoided.
- Benefits of the Hornsea Project Three compensation.

The adverse impacts of Hornsea Project Three on the FFC SPA will not be avoided

Hornsea Project Three will contribute to the predicted cumulative and in-combination reduction in the kittiwake population of the FFC SPA due to multiple offshore wind farms. This is demonstrated by the Population Viability Analysis graph at Figure 1, paragraph 2.9 in the RSPB's [REP4-097](#). Each identified scheme adds to the downward pressure on the FFC SPA population.

De facto, the FFC SPA kittiwake population will be further reduced as a result of the Hornsea Project Three impacts. The impact will not be avoided in biological terms at the FFC SPA itself (see also below re “Benefits of the Hornsea Project Three compensation”). It is therefore critical that this impact is acknowledged in all future assessments and not “removed” as if it is not happening.

Consequently, the adverse effect on the integrity of the FFC SPA arising from this predicted impact will not be avoided.

It follows that it is important to understand and acknowledge the full context of the in-combination and cumulative impacts of subsequent offshore wind farms on the FFC SPA's kittiwake population. Hornsea Project Three's contribution to the downward pressure on that population will exist in

reality and will continue to act in-combination with other projects (past, present and future) during and beyond its lifetime. These impacts will persist post-decommission due to delayed impacts on the population (see also answer to Question 3.2.12 below).

Benefits of the Hornsea Project Three compensation

The RSPB has set out elsewhere the reasons why it considers the claimed benefits of the Hornsea Project Three kittiwake compensation are uncertain and that the compensation is experimental in nature. In [REP4-097](#) we cross-refer to more detailed critiques of kittiwake compensation proposals proposed by other offshore wind farms:

- Para 3.4: refers to our comments on the initial Hornsea Project Three and Norfolk Vanguard proposals (April 2020);¹
- Para 3.10: refers to our comments on the Norfolk Boreas proposals (October 2020);²
- Para 3.12: refers to our comments on the more detailed Hornsea Project Three proposals (November 2020).³

In the context of the Examining Authority's question (b), there are several important and connected aspects of the Hornsea Project Three compensation to be aware of which underline our comments immediately above:

- There is no guarantee that the Hornsea Project Three compensation scheme will successfully recruit the (estimated) requirement of 73 breeding adult kittiwakes per annum deemed to be necessary to offset the losses at the FFC SPA arising from Hornsea Project Three;
- Critically, it is accepted by the RSPB, Natural England and Hornsea Project Three that kittiwake population ecology means there can be no biological certainty that any breeding adults so recruited will choose to breed at the FFC SPA itself.
- Consequently, it cannot be assumed Hornsea Project Three kittiwake compensation will "offset" the predicted population losses due to Hornsea Project Three. This means some or all of the population reduction at FFC SPA will remain and needs to be acknowledged in future impact assessments;
- This is reflected in the objective for the Hornsea Project Three kittiwake compensation scheme set out in paragraph 3.34 of the Hornsea Project Three Kittiwake Compensation Plan:

"The purpose of site selection has been to identify an area to host artificial nesting sites that will be occupied by new recruits in the English southern North Sea, whilst contributing to an increase of breeding adults to the Eastern Atlantic kittiwake population." (emphasis added)

- The target of any recruitment is the Eastern Atlantic kittiwake population, not the FFC SPA. This is, in part, explicit recognition of the inability of the Hornsea Project Three applicant to guarantee any breeding adults arising from the compensation scheme would return to the FFC SPA itself. This issue was discussed by Hornsea Project Three, Natural England and the RSPB during discussions on the "Kittiwake Compensation Plan" and the above formulation for an objective arrived at.

¹<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-003217-The%20Royal%20Society%20for%20the%20Protection%20of%20Birds%20-%20Resposne%20to%20SoS%20Consultation%203.pdf>

² <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010087/EN010087-002549-DL17%20-%20RSPB%20-%20Deadline%20Submission.pdf>

³ <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-003259-RSPB.pdf>

- For example, [Natural England's comments on the "minded to consent" consultation for Hornsea Project Three](#) stated:⁴

"...however the number of 'new' birds that will recruit back to FFC SPA as a result of this measure is unknown" (section 1.1, numbered para (4), page 4)

- The Secretary of State accepted the wider, Eastern Atlantic population objective in his decision letter (at paragraph 6.51)⁵ and Habitats Regulations Assessment (section 13.1, page 109)⁶.

It is for these reasons and our concerns over the effectiveness of the Hornsea Project Three kittiwake compensation measures that the RSPB considers it is inappropriate to assume the impacts of Hornsea Project Three on the kittiwake population of the FFC SPA itself will be wholly or partially reversed.

Therefore, the RSPB considers it is appropriate to include the estimated collisions at Hornsea Project Three as part of the in-combination annual kittiwake collisions apportioned to the FFC SPA in assessing the impacts of EA1N/2 and other offshore wind farms.

⁴ <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-003257-Natural%20England.pdf>

⁵ <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-003265-EN010080%20Hornsea%20Three%20-%20Secretary%20of%20State%20Decision%20Letter.pdf>

⁶ <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-003267-EN010080%20Hornsea%20Three%20-%20Habitats%20Regulations%20Assessment.pdf>

Annex 5: Extracts from the RSPB's Deadline 17 submission (REP17-012) to the Norfolk Boreas examination: Cover page, contents and pages 2 to 22.



Written Submission

for the

Royal Society for the Protection of Birds

Submitted for Deadline 17
7th October 2020

Planning Act 2008 (as amended)

In the matter of:

Application by Norfolk Boreas Limited for an
Order Granting Development Consent for the
Norfolk Boreas Offshore Wind Farm

Planning Inspectorate Ref: EN010087
Registration Identification Ref: 20022916

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1. Summary of the RSPB's key concerns at Deadline 16 regarding compensation packages

- 1.1 At Deadline 10 the RSPB set out its detailed comments on the proposed compensation measures for kittiwake from the Flamborough and Filey Coast Special Protection Area (SPA) and lesser black-backed gull from the Alde-Ore Estuary SPA. These were supplemented by further comments at Deadline 16.
- 1.2 At Deadline 16, the RSPB reiterated the need to ensure that any compensation packages are based on the ecological requirements of the species affected. The conservation objectives for the site must be used to inform whether measures would be appropriate, alongside the site's supplementary advice and site improvement plans.
- 1.3 Based on the information available to us at Deadline 15 we outlined our concerns regarding:
 - The sole focus on predator management measures (defined as a predator-proof fence) to improve productivity of lesser black-backed gulls within the Alde-Ore Estuary SPA;
 - The limitations on developing appropriate compensation packages for the Alde-Ore Estuary SPA and Flamborough and Filey Coast SPA based on the information submitted at Deadline 14 and Deadline 15 by the Applicant and Natural England;
 - The reliance on measures that are unproven, namely, artificial nesting structures;
 - The failure to provide any compensation measures to address conclusions of adverse effects on integrity of the Flamborough and Filey Coast due to impacts on gannet, guillemot and razorbill.
- 1.4 The RSPB has reviewed the additional information submitted by the Applicant at Deadline 16, with particular reference to compensation measures for adverse effects on kittiwakes from the Flamborough and Filey Coast SPA. Whilst we appreciate the additional information presented by the Applicant, the RSPB considers there remain significant uncertainties with regards the proposed compensation packages. The number of further agreements, consents and permissions that will be required to deliver the proposed compensation measures post-consent is profoundly worrying, as there is no certainty now that those can be agreed or granted. It is therefore not clear that sufficient information is available to be confident that all necessary compensation measures will be secured in order to maintain the overall coherence of the Natura 2000 network.

1.5 This document sets out the RSPB's views on those matters and covers:

- Further comments on the Applicant's compensation packages including detailed comments on the information provided on the Addendum to REP11-012 submitted at Deadline 16;
- A summary of the RSPB's position regarding the approach to securing compensation, including our comments and recommendations on the draft DCO conditions.

1.6 The RSPB will review any further information on the compensation packages that may be submitted at Deadline 17 and may have further comments to make at Deadline 18 (12th October 2020).

2. The RSPB's further comments on the Applicant's compensation packages

a) Introduction

2.1 This section provides a resumé of the RSPB's assessment of the Applicant's proposed compensation measures against the criteria set out in the EC guidance *Managing Natura 2000*.¹ It should be read alongside the following detailed comments set out in Annex 1 to the RSPB's Deadline 10 submission (REP10-067), noting that the proposals for Norfolk Boreas mirror those proposed for Norfolk Vanguard:

- Table 5: Criteria for designing compensatory measures (including the RSPB's additional commentary);
- Paragraph 209: setting out the detailed work required to assess options to determine if the compensation measure is the most appropriate and has a reasonable guarantee of success;
- Lesser black-backed gulls, Alde-Ore Estuary SPA:
 - Table 9: summary of the conclusions on potential lesser black-backed gull compensation measures considered by Norfolk Vanguard with the RSPB's comments;
 - Table 10: the RSPB's review of the Norfolk Vanguard lesser black-backed gull compensation measures;
- Kittiwakes, Flamborough and Filey Coast SPA:
 - Table 6: summary of the conclusions on potential kittiwake compensation measures considered by Hornsea Three and Norfolk Vanguard with the RSPB's comments;
 - Table 8: the RSPB's review of the Norfolk Vanguard kittiwake compensation measures: artificial nesting structure;
- Annex A (kittiwakes) and B (lesser black-backed gulls): short summary of the main breeding ecology requirements for a successful colony.

2.2 We summarise our position at the end of the Examination against each criterion based on material provided by the Applicant since Deadline 7 and also provide an overall conclusion on the extent to which we think the criteria have been met. We do not seek to repeat our detailed

¹ EC (2018) *Managing Natura 2000 sites – The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (21/11/18)* C(2018) 7621 final.

comments made on these matters at Deadline 10 (see above). Our comments below complement our assessment of whether the requirement to secure the compensation measures has been met, which we set out in Section 3.

b) [Proposed compensation measures for lesser black-backed gull from the Alde-Ore Estuary SPA](#)

2.3 We set out in Table 1 below our summary view of the Applicant’s proposed compensation measures for lesser black-backed gull from the Alde-Ore Estuary SPA against the criteria set out in the EC guidance *Managing Natura 2000*. It distils the RSPB’s view based on its detailed comments at Deadline 10 (REP10-067), supplemented by comments in subsequent responses, in particular at Deadline 16 (REP16-029).

Table 1: Review of proposed measures and appropriateness as a compensation measure for impacts on lesser black-backed gull from the Alde-Ore Estuary SPA

EC criteria/additional consideration	RSPB comment
Additionality	<p>The RSPB’s view remains that the current proposed compensation measures have failed to demonstrate that they will be additional to the SPA site management measures already required by Natural England to meet the SPA conservation objective to restore the lesser black-backed gull population to above 14,070 pairs, nor how they will demonstrate any additionality to the site management measures required.</p> <p>The proposed condition is focused too narrowly on (see paras 4.13-4.19, REP16-029):</p> <ul style="list-style-type: none"> • Measures <u>inside</u> the Alde-Ore Estuary SPA (site management restoration measures) • Predator-proof fencing alone. <p>The compensation measures should address all relevant breeding ecological requirements of the species. Compensation measures should not be solely focused on matters relating to the control and management of predators as we set out in our detailed comments at Deadline 10 (REP10-067).</p> <p>We note in Section 4 below that the DCO condition 2(1) sets the objective as delivering improved breeding success <u>at</u> the Alde-Ore Estuary SPA. The RSPB considers that this is inappropriate, as it is a site management issue. It also geographically constrains any proposed compensation, as it essentially requires the benefit of the measure to be located within the SPA. This artificially prevents consideration of more sustainable locations outside the SPA, either within the immediate environs of the SPA or further afield. The search for compensation must explicitly start <u>outside</u> the SPA.</p>

EC criteria/additional consideration	RSPB comment
Targeted	<p>The proposed measure correctly identifies the need to target breeding productivity of lesser black-backed gull: however, it is too narrowly targeted at predation risk and fails to consider other key factors critical to successful breeding i.e. habitat quality, disturbance and flooding.</p> <p>The RSPB therefore remains extremely concerned that these key breeding success factors will (see paragraph 4.12, REP16-029):</p> <ul style="list-style-type: none"> • not be legally required to be considered, • be deemed of secondary importance and • increase the risk of failure. <p>Without prejudice to the RSPB’s overall view, the draft DCO conditions should be redrafted to require the search for compensation measures at a suitable location to address all relevant factors essential to successful breeding. This must particularly address habitat quality, disturbance and flooding, alongside any predation management that may be required following an appropriate risk assessment for the location. Each location will be able to match these success factors to a different degree. Therefore, it is logical that they are considered together, rather than focusing on a single factor.</p>
Effective	<p>The RSPB’s comments remain the same as we submitted at Deadline 10 (REP10-067) and 16 (REP16-029) and are reinforced by the narrower focus on predator-proof fencing and strong implication the measures will be located within the SPA (see also Additionality, Targeted, Location). The Applicant and Natural England risk placing all their eggs in one, predator-proof, basket.</p> <p>We remain extremely concerned that no specific measure has been set out in detail to enable careful evaluation of its likely effectiveness. This requires details on e.g.</p> <ul style="list-style-type: none"> • location, • site specific threats and pressures to be addressed (including exposure to collision risk from offshore wind farms), • detailed design, • ongoing management measures, • likelihood of colonisation by breeding lesser black-backed gulls. <p>The RSPB set out the range of factors that should be addressed through any compensation measures in order to provide confidence that they would be effective at Deadline 10 (REP10-067) and in additional comments at Deadline 16 (REP16-029).</p>
Technical feasibility	<p>We remain extremely concerned that it has not been possible to evaluate the technical feasibility of a specific measure in a precise location due to the lack of any site-specific proposal. The precise measures will be required to be site specific and, as we identified in</p>

EC criteria/additional consideration	RSPB comment
	<p>our Deadline 10 comments on Long-term implementation, may face significant constraints e.g. archaeological considerations, impact on additional protected features, and measures needed to meet any landscape concerns.</p> <p>Without prejudice to our overall position, we support the proposal to convene a Working Group to agree the most appropriate measure(s) with a reasonable guarantee of success, whilst recognising that this is not a compensation measure in its own right. Given our comments elsewhere, this should not be:</p> <ul style="list-style-type: none"> • Technically constrained to a single measure (i.e. predator-proof fencing) • spatially constrained by the draft DCO condition to measures “at” the SPA, but allow for a structured, spatial search spatially to find suitable location(s).
Extent	<p>Our comments on determining the extent of the necessary compensation remain as stated at Deadline 10 (REP10-067). This is essential work that needs to be carried out before consent is granted in order to ensure there is a common understanding of the scale of compensation required to be provided.</p> <p>This then has to be set against a detailed proposal in order to determine whether or not the specific proposal can meet the ecological objective and thereby maintain the overall coherence of the Natura 2000 network for breeding lesser black-backed gulls.</p> <p>We are disappointed no further work has been carried out by the Applicant on this issue since Deadline 7, in contrast to that taken in respect of kittiwakes (notwithstanding our comments on that issue – see below).</p>
Location	<p>For the reasons set out elsewhere in this table, the RSPB does not consider location within the SPA can be considered compensation. The draft DCO conditions therefore require amendment to avoid artificially constraining the area of search to locations “at” the Alde-Ore Estuary SPA. They must specifically refer to measures outside its boundary.</p> <p>As per paragraph 210 of our Deadline 10 submission (REP10-067), the RSPB continues to recommend that the focus is placed on detailed consideration of off-site compensatory measures using the search hierarchy set out in the EC guidance. Based on the RSPB’s knowledge of the species, this may require consideration of locations away from the Alde-Ore Estuary. This should consider the feasibility of:</p> <ul style="list-style-type: none"> • Creating new habitat to support breeding lesser black-backed gulls outside the existing protected area network for this species;

EC criteria/additional consideration	RSPB comment
	<ul style="list-style-type: none"> Measures to increase the population of a large colony not protected by the existing lesser black-backed gull protected area network.
Timing	<p>The RSPB's position on the matter of timing remains as set out at Deadline 10 (REP10-067) i.e. the detailed compensation requirements are identified, agreed and secured before consent is granted.</p> <p>Without prejudice to that position, we set out our comments on the draft DCO conditions below on the matter of timing.</p>
Long-term implementation	<p>The RSPB's comments remain as stated at Deadline 10 (REP10-067), with particular reference to:</p> <ul style="list-style-type: none"> The length of time the compensation measure should be secured for must be based on the combination of the lifetime of the development plus the time it will take the affected seabird population to recover from the impacts. This can be determined by appropriate population modelling. This work has not yet been carried out, nor has it been set as a compensation objective. Lack of a specific proposal means that it is not possible to evaluate whether site specific constraints exist that could undermine confidence in the long-term implementation of the proposal. <p>Without prejudice to our position, we set out our comments on the draft DCO conditions below.</p>
SUMMARY and RECOMMENDATIONS	<p>The RSPB summary position is that the basic challenges with proposing compensation within the Alde-Ore Estuary SPA remain and have been heightened by the narrower focus on predator-proof fencing i.e.:</p> <ul style="list-style-type: none"> It would not be additional to measures already necessary to restore the lesser black-backed gull population to favourable status; There is scientific uncertainty as to the effectiveness of the measures and further research is required to test the most likely measures; It would be necessary to show how any compensatory measures within the SPA are genuinely additional to site management. <p>Our recommendations remain broadly as those set out at Deadline 10. Without prejudice to that position, we have recommended changes to the draft DCO conditions below to address our concerns.</p>

c) Proposed compensation measures for kittiwake from the Flamborough and Filey Coast SPA

2.4 We set out in Table 2 below our summary view of the Applicant's proposed compensation measures for impacts on kittiwakes from the Flamborough and Filey Coast SPA against the criteria set out in the EC guidance *Managing Natura 2000*. It distils the RSPB's view based on its detailed comments at Deadline 10 (REP10-067), supplemented by comments in subsequent responses, in particular at Deadline 16 (REP16-029) and our assessment of the Applicant's recent submission REP16-003.² We make some high level comments on REP16-003 immediately below, which should be read alongside more detailed comments in Tables 2 and 3 below.

2.5 The RSPB welcomes the additional information provided by the Applicant in REP16-003 on the following matters:

- Population parameters to calculate the scale of compensation required (e.g. variations in productivity, survival rates, dispersal from natal colony) and related factors (e.g. proximity to successful (growing) colony, proximity to good food supply).
- Further information on existing colonies on artificial nest structures at Lowestoft, the River Tyne and Dunbar.

2.6 However, the RSPB notes that, notwithstanding the additional information provided, there remains considerable uncertainty over key matters that will provide a reasonable guarantee of success in respect of the proposal to employ an artificial nesting structure as a compensation measure. These include:

- **Design:** the nature of a successful physical design for a new artificial nesting structure is unclear: including aspect, height above sea level, shelter from sun/prevaling wind, predators. The Applicant's acceptance of the need for further research on these fundamental matters at paragraphs 61-65 of REP16-003, underlines the level of uncertainty;
- **Location:** the location of the compensation measure remains unknown. This is a fundamental issue that has not yet been resolved and which therefore lacks critical analysis e.g. on the availability of an adequate food supply and impacts of additional threats such as collision risk from current and planned wind farms. We note the following:

² Norfolk Boreas Limited. Addendum to REP11-012 - In principle Habitats Regulations Derogation Provision of Evidence Appendix 1 Flamborough and Filey Coast Special Protection Area (kittiwake) in Principle compensation (Version 2)

- **Offshore:** two options are proposed – at unspecified locations within the Order limit (as previously) and outside the Order limit. This remains highly speculative (including design, maintenance etc) and lacking in sufficient detail to be able to evaluate a structure in such a location;
- **Onshore:** various locations are hinted at, in particular the River Tyne and Lowestoft (and possibly Great Yarmouth). Notwithstanding the letter of comfort from the Port of Lowestoft, there is no commitment to any location and, as with offshore, the possible location remains highly speculative and prevents any ability to evaluate its likely success.
- **Scale of compensation required:** while additional information has been provided, we consider the calculations presented to estimate the colony size that will deliver 28 breeding adult kittiwakes into the regional population each year are inadequate. As we set out in our detailed comments below, and summarise in Table 2 (Extent) below, further work is required on these calculations to reach agreement on the scale of compensation required to address the predicted adverse effects. The currently presented methodology fails to account fully for the variation in the known population parameters in the evidence base, as well as the timescale over which that population level would be required to be maintained beyond the lifetime of the development.
- **Likelihood of colonisation:** despite the confident statements made by the Applicant, this remains a significant area of uncertainty, especially if the structure is located away from an existing successful colony. Even if located adjacent to such a colony, it is not clear whether any colonisation would simply be of birds from an existing colony (by encouraging a shift in local distribution) rather than adding additional birds into the overall breeding population.
- **Timescale to achieve and the required population levels:** we note the discussion of different ratios to address time lags between installation, growth in population to achieve the required population level etc. Ratios need to be used where they make ecological sense and will help secure a successful outcome by providing more of something. Simply multiplying capacity in the nest structure to address uncertainty over the rate of population growth and the scale of population likely to be achieved risks giving a false level of confidence. Key questions that arise include whether the provision of more nest sites will increase the chances that birds will:
 - Colonise;

- Breed successfully to enable the colony to grow and reach the required level;
- Recruit the requisite numbers of breeding birds into the population; and
- Achieve and maintain the required population level and other population parameters e.g. productivity, survival.

2.7 In order to address these uncertainties, we recommend that a meta-population analysis is carried out to clarify dynamics between potential purpose-built artificial nest sites and SPA populations.

Table 2: Review of proposed measures and appropriateness as a compensation measure for impacts on kittiwakes from the Flamborough and Filey Coast SPA

EC criteria/additional consideration	RSPB comment
Additionality	<p>If successful, the measure would be additional to other measures already required under Article 6, as it is not currently a necessary conservation measure. However, the RSPB’s comments from Deadline 10 (REP10-067) remain, in particular the challenge in any onshore or offshore location to securing a sustainable food supply and avoiding vulnerability to collision risk.</p> <p>We have not seen evidence presented that justifies the confidence set out in Table 1.1 of REP16-003 that kittiwakes would be “highly likely” to use the sites provided such that additionality could be proven. The Applicant has not provided evidence that any such birds would not be simply those from the existing breeding birds relocating from other colonies/sites, as opposed to enabling new birds to breed that would otherwise not breed (i.e. additional). With reference to locations at the Tyne and Lowestoft, it has not been demonstrated that shortage of nesting sites is suppressing the population.</p> <p>The RSPB is separately concerned at the proposal by Natural England and agreed by the Applicant that the objective of the compensation measures should be to:</p> <p><i>“increase the number of adult kittiwakes available to recruit to the Flamborough and Filey Coast Special Protection Area” (draft DCO condition 1(2)).</i></p> <p>We can understand the temptation to focus on providing compensation measures that benefit the adversely affected SPA. That has been the traditional approach in respect of damage to estuarine European sites. However, in this particular case we consider it is flawed for the following reasons:</p> <ul style="list-style-type: none"> • The Flamborough and Filey Coast SPA kittiwake population has undergone severe decline and correctly has a restore objective. The scale of that loss means it will be extremely difficult to demonstrate that the compensation measure has

EC criteria/additional consideration	RSPB comment
	<p>increased the numbers of adult kittiwakes recruited into the SPA. Therefore, it will not be possible to demonstrate the additionality of the compensation measure;</p> <ul style="list-style-type: none"> • In the absence of the necessary site management measures to secure adequate food supply and reduce collision risk as per Natural England’s site conservation objectives, any such birds recruited into the SPA would themselves be vulnerable to the same pressures and risks. Therefore, until such time as the Government has secured those site management measures, there must be questions over the sustainability of this as an objective. <p>For the compensation to be effective, it needs an appropriate colony size (based on agreed calculations) that will deliver 28 breeding adult kittiwakes into the regional population each year. Working out the appropriate colony size requires careful assessment of likely productivity and adult survival of birds reared at the new colony. This would allow the success of any new colony to be measured in its own right.</p> <p>Separately, in respect of the possible location of an artificial nesting structure at Lowestoft, we draw the Examining Authority’s attention to the situation at Sizewell Rigs on the Suffolk coast. This man-made structure is a County Wildlife Site and currently hosts a breeding kittiwake population. The structure is due to be removed by 2023 as part of the Sizewell A decommissioning. It is the RSPB’s understanding that under the decommissioning licence issued in 2006, the operator (Magnox Limited) has agreed to provide additional nesting sites at the Lowestoft colony. Notwithstanding our concerns over the evidence base on the installation of such new structures, we note this long-standing commitment and note it complicates matters in respect of demonstrating additionality at this location.</p>
Targeted	<p>The measure is targeted at breeding kittiwakes.</p> <p>However, the two key difficulties referred to above and the ongoing uncertainties summarised above highlight weaknesses in respect of whether the measure addresses fully the ecological functions and processes required for successful breeding.</p>
Effective	<p>Given the ongoing uncertainties in this measure acknowledged by the Applicant, the RSPB continues to consider the measure must be regarded as experimental at this time.</p> <p>Based on the current evidence base, we cannot be confident that the provision of artificial nesting structures would be effective and able to demonstrate the necessary additionality.</p>

EC criteria/additional consideration	RSPB comment
Technical feasibility	<p>The RSPB accepts that construction of an artificial nesting structure per se is likely to be technically feasible. However, the Applicant has acknowledged ongoing uncertainties as to what would comprise a successful artificial nesting structure.</p> <p>Therefore, for the reasons set out elsewhere in this table, there remain serious doubts as to the scientific evidence that such a structure would have a reasonable guarantee of success on its own terms.</p> <p>Demonstrating (as opposed to assuming) access to a good, reliable food supply and avoidance of current and planned offshore wind farms remain key issues that have not been fully addressed.</p>
Extent	<p>As noted above, we acknowledge the additional information presented by the Applicant in REP16-003 to calculate the population levels required to compensate for the damage caused by the Norfolk Boreas scheme to the Flamborough and Filey Coast SPA. However, as our detailed comments above on REP16-003 have set out, we are concerned about some of the underlying assumptions made by the Applicant in making its calculations in Table 1.2, for example:</p> <ul style="list-style-type: none"> • The Applicant uses the productivity figure of 0.8 fledged chicks per nest as the number required to maintain a stable population. This figure is highly disputed and one of the lowest in the literature, which is not a precautionary approach in this context. The RSPB suggests that a higher figure is used (e.g. 1.5 chicks per nest (Cook & Robinson 2010)). • Colonisation is not certain, and if colonisation occurs it would then take several years for a new structure to be fully occupied. If colonised by new recruits, it is likely that productivity would be lower in the first few years after colonisation than in later years. Therefore, it would be many years before the projected productivity could be achieved from any new structure. The lower productivity in the early years must be accounted for. • The assumption that 49% of fledglings will become adults does not account for variability in demographic rates. We strongly recommend that a measure of variation is included based on published studies. There is also a need to account for additional mortality due to cumulative collision risk in these calculations of the proportion of fledglings that will become adults (as the demographic rates that these calculations are currently based on were largely gathered in the absence of significant numbers of wind turbines). • The logic behind the calculation of the number of nests required to produce surplus recruits for the SPA population is not clear. This has been calculated as the predicted productivity at the artificial site (1.2) minus the recent productivity estimates from the SPA (0.6) but it is not clear why

EC criteria/additional consideration	RSPB comment
	<p>a comparison of these two numbers would give you the number of recruits available for the SPA. The Applicant should be asked to clarify what evidence this calculation is based on. A more appropriate approach might be to calculate the number of fledglings required for a stable population (1.5 according to Cook & Robinson 2010; 0.8 according to Coulson 2017 (the Applicant’s chosen figure); 1.5 is the precautionary estimate of the two), and count any fledglings over and above this figure as surplus fledglings available to the wider metapopulation of which the Flamborough and Filey Coast SPA forms a part.</p> <p>Therefore, at this point we cannot agree with the calculations as presented in Table 1.2 in REP16-003. Our comments in REP10-067 remain. Agreement needs to be reached on how these calculations are carried out. This must build in the potential variation on the extent of compensation required, depending on which population parameters are used and describe the level of confidence in the results of those calculations.</p>
Location	<p>The RSPB acknowledges and welcomes that the Applicant has extended its consideration to include onshore as well as offshore locations. However, considerable uncertainty remains as there is no commitment to any location and the possible location remains highly speculative, thus preventing any ability to evaluate its likely success.</p> <p>The RSPB’s concerns regarding the original proposal for an offshore location remain and have not been overcome by the additional information provided by the Applicant.</p>
Timing	<p>The RSPB welcomes Norfolk Boreas’s commitment to ensure the artificial nest site(s) be constructed and available for use prior to first operation of any wind turbine (condition 1(3)). This would be welcome if this was a proven method for supplying additional nesting capacity for kittiwakes.</p> <p>However, the experimental nature of the measure means there is no guarantee of successful colonisation (especially in advance of the wind farm becoming operational) and thereby the cumulative adverse effect predicted may not be offset. There remains a high risk that the structure(s) could fail to attract any breeding kittiwakes, the anticipated capacity of any structure(s) may not be met, or it/they will not result in additional recruitment into the breeding population.</p>
Long-term implementation	<p>The RSPB’s comments remain as stated at Deadline 10 (REP10-067), with particular reference to:</p> <ul style="list-style-type: none"> • The length of time the compensation measure should be secured for must be based on the combination of the lifetime

EC criteria/additional consideration	RSPB comment
	<p>of the development <i>plus</i> the time it will take the affected seabird population to recover from the impacts. This can be determined by appropriate population modelling. This work has not yet been carried out, nor has it been set as a compensation objective.</p> <ul style="list-style-type: none"> • Lack of a specific proposal means that it is not possible to evaluate whether site specific constraints exist that could undermine confidence in the long-term implementation of the proposal.
<p>SUMMARY and RECOMMENDATION</p>	<p>The RSPB's summary position is that the ability to create successful artificial nesting structures for kittiwakes with a reasonable guarantee of success is unproven and would be experimental, whether the structure(s) is/are located onshore or offshore.</p> <p>For reasons set out above, we consider the current objective (to recruit birds back in to the Flamborough and Filey Coast SPA) is incorrect and that the objective should be changed to recruit birds into the regional kittiwake population.</p> <p>Our recommendations remain broadly as those set out at Deadline 10. Without prejudice to that position, we have recommended changes to the draft DCO conditions below to address our concerns.</p>

d) [Detailed comments on REP16-003: Norfolk Boreas Limited. Addendum to REP11-012 - In principle Habitats Regulations Derogation Provision of Evidence Appendix 1 Flamborough and Filey Coast Special Protection Area \(kittiwake\) in Principle compensation \(Version 2\)](#)

2.8 The RSPB has reviewed the information submitted at Deadline 16 in the Addendum to REP11-012 (REP16-003). We acknowledge and welcome the information which aims to move forward the discussions about compensation of kittiwake from the Flamborough and Filey Coast SPA that would be affected by the project. However, we consider the information provided is still lacking in detail. We highlight in Table 3 below our key observations from the Applicant's submission and areas that require further work to demonstrate that the proposed approach to compensation is appropriate.

Table 3: The RSPB’s detailed comments on the Addendum to REP11-012

Reference	Comments
Paragraph 4	We agree that it is not only important to look at inter- and intraspecific competition as a function of distance from colony, but also as a function of distance to (potentially) frequented offshore foraging sites.
Paragraph 5	While we agree that there will be a certain level of collision risk even if structures are placed away from windfarms (e.g. on the coast) due to birds foraging in or commuting through the area, the probability of an interaction and therefore the risk reduces by multiple magnitudes with distance and we therefore strongly advise against purpose-built artificial nesting structures within or in immediate proximity to the active or planned wind farms.
Paragraph 7	We strongly advise against the use of the mean foraging range to inform the suitability of potential purpose-built artificial nesting sites. A minimum of the mean maximum should be used but the maximum foraging distance for local colonies should be considered when assessing inter- and intra-specific competition (e.g. Wischniewski <i>et al.</i> 2018 ³ for the Flamborough and Filey Coast).
Paragraph 8	<p>We disagree that there is a generally “good” local food supply nor that there is “high” breeding success, as numbers and productivity of kittiwakes:</p> <ul style="list-style-type: none"> • have been decreasing substantially, • have been consistently below levels required for population maintenance for the last 10 years, and • are likely to continue to do so (Lloyd <i>et al.</i> 2019⁴). <p>The latest productivity data used in the named publications is from 2018 (Olin <i>et al.</i> 2020⁵) but only mean productivity between 1986-2018 has been used in this publication. It has to be considered that while productivity at the named artificial structures might be higher than at some natural cliff colonies, it is likely to decline to a similar degree in the future, unless wider ecosystem issues (such as food supply) are resolved.</p>
Paragraph 10	While proximity to other colonies is considered in terms of intra- and inter-specific competition, this should also be included when scoring distance to foraging grounds. Clarification should be sought on whether this has been considered.
Paragraph 13	a) The productivity figure of 0.8 fledged chicks per pair per year to maintain a stable population provided in this report is highly disputed and one the lowest that can be found in the literature. There are alternative studies that found more chicks are required to maintain a stable population (e.g. Cook and

³ Wischniewski, S., Fox, D.S., McCluskie, A. & Wright, L.J. 2018. Seabird tracking at the Flamborough & Filey Coast: Assessing the impacts of offshore wind turbines. Pilot Study 2017. RSPB Centre for Conservation Science Report to Ørsted. RSPB, Sandy, UK.

⁴ Lloyd, I., Aitken, D., Wildi, J. & O’Hara, D. 2019. Flamborough and Filey Coast SPA Seabird Monitoring Programme. 2019 Report. RSPB Bempton Cliffs Report. RSPB, Bempton, UK.

⁵ Olin, A.B., Banas, N.S., Wright, P.J., Heath, M.R. & Nager, R.G. 2020. Spatial synchrony of breeding success in the black-legged kittiwake *Rissa tridactyla* reflects the spatial dynamics of its sandeel prey. *Marine Ecology Progress Series* 638: 177-190.

Reference	Comments
	<p>Robinson 2010⁶ suggested a productivity around 1.5 was required for population stability). Considering our limited knowledge of some of the main parameters that require an accurate prediction (e.g. juvenile/immature/adult survival, and the spatial variability in these parameters), it is difficult to say which one is more accurate and a precautionary approach should be taken. This is especially true given the likelihood that overall kittiwake productivity will drop further over the coming years due to diminishing food supplies. In the same context it is also difficult to say when is productivity "good" and when it is "bad".</p> <p>b) Causes for the increased productivity in Lowestoft might be due to decreased natural predation, reduced exposure of nest sites to erosion or weather events and overall decreased intra-and interspecific competition further south, which should be considered. It would be good to get a better understanding of what exactly causes the increased productivity in Lowestoft and to clarify whether the productivity of 1.1 chicks refers to Lowestoft overall or to the historical seawall data (i.e. what is the variability of breeding success across Lowestoft).</p> <p>c) We do not agree that an increased number of kittiwakes breeding at Lowestoft due to an artificial nesting structure is likely to have a substantial positive ("reviving") effect on the Flamborough and Filey Coast SPA via meta-population dynamics. This is because the limiting factor for birds breeding in the SPA is not a scarcity of recruits but food supply. Even if birds from Lowestoft would start nesting at the Flamborough and Filey Coast, there is no reason these birds would be able to access higher quality nests sites nor have a higher breeding success than birds recruited from elsewhere. Additionally, as new breeders, they would initially be inexperienced birds with a lower breeding success than experienced birds that have bred in the colony for a number of years. As such, rather than having a "reviving" effect the mechanism described would likely lead to a source-sink dynamic between Lowestoft and the SPA.</p> <p>d) It also has to be noted that our understanding of meta-population dynamics in kittiwakes is very limited and it only recently received the attention of research. Glasgow University has been developing some initial meta-population models for the Shetland kittiwake regional population. We suggest that a similar piece of work for the southern North Sea, at the regional or sub-regional level would be able to elucidate the dynamics between potential purpose-built artificial nest sites and SPA populations.</p>
Paragraph 14	<p>Care should be taken to not confuse artificial structures and purpose-built artificial nesting structures in terms of compensation. Arguably, birds breeding on artificial structures, such as castles, churches etc. that were not purpose-built should still be considered a semi-natural nesting site, as it was established without human intent and therefore does not intentionally enhance the breeding population to compensate for an increase in mortality. There is also no consideration of the very many coastal castles and other man-made structures where kittiwakes do not</p>

⁶ Cook, A.S.C.P. & Robinson, R.A. 2010. How representative is the current monitoring of breeding seabirds in the UK? BTO Research Report No. 573. BTO, Thetford, UK.

Reference	Comments
	breed, for comparison with the few where they do. We suggest concentrating on purpose-built artificial nesting structures.
Paragraph 15	See comments on paragraph 13. (a and b).
Paragraph 19	We agree that establishing a purpose-built artificial nesting site in Kent is not a favourable choice. If birds have abandoned their natural breeding sites without a clear cause (disturbance/predation or erosion) it is very unlikely that new colony can be established successfully and in a timely manner.
Table 1.1	We would welcome some more detail behind the justification of each of the scores. While some are self-explanatory (e.g. the red score for collision risk for nesting structures built within the Order limits) some are less intuitive (e.g. the green scores for the likelihood of use for all structures seems unjustified, given how many artificial structures are positioned along the coast and offshore where kittiwakes aren't breeding, or the green scores for proximity of large colonies, given that smaller colonies should probably be considered also).
Paragraph 22	Clearly there is a trade-off between starting to breed as soon as possible and doing so at a high-quality nest site (close to food supply, sheltered and protected from predators) which will ensure maximising breeding success. Given that there are kittiwake colonies that were deserted in recent years this plays a major role and has to be considered.
Paragraph 23-24	There is quite a bit of speculation in these paragraphs based on little more than anecdotal evidence from the named references that should be caveated. The processes that lead to emigration and immigration are not as well understood as outlined and more recent evidence from the Pacific suggest that these processes are not necessarily consistent across the whole species/ across regions either (McKnight 2019 ⁷). We do agree with the general sentiments, but also would like to highlight that similar to other seabird species there appears to be a generally lower breeding success in first-time breeders that reaches an optimum over time before decreasing again with age (Coulson 2011 ⁸). Similarly, there appears to be an optimum age for first breeding (Coulson 2011 ⁸). Thus, we would expect breeding success at purpose built artificial nest structure to be lower than expected during the first few years. This has to be accounted for.
Paragraph 26-27	See previous comment. Just because birds are physiologically able to breed at an earlier age than they currently do does not mean they are able to do so with the same success as well established breeders. We would also like to highlight that the most recent reference highlighting density dependence and therefore high competition for high quality nests sites is from the Pacific (McKnight et al. 2019 ⁷). It is questionable how transferable these results are geographically and how relevant they are at the moment locally given that the last regional evidence is from the 1980s and kittiwake populations have dramatically declined since (Coulson 2011 ⁸).

⁷ McKnight, A., Blomberg, E.J., Irons, D.B., Loftin, C.S. & McKinney, S.T. 2019. Survival and recruitment dynamics of black-legged kittiwakes *Rissa tridactyla* at an Alaskan colony. *Marine Ornithology* 47: 209-222.

⁸ Coulson, J.C. 2011. *The Kittiwake*. T & AD Poyser, London.

Reference	Comments
Paragraph 32	Notwithstanding our wider comments, we agree that Lowestoft is probably the best location of those proposed by the Applicant (which is not exhaustive), but perhaps consider other structures (e.g. a short way offshore away from predators) at Lowestoft not just provision of extra ledges.
Paragraph 34	The likelihood of colonisation of novel sites is overstated. Whilst kittiwakes have colonised <u>some</u> sites when allowed to do so, there are also lots of offshore structures that they have not colonised and these need to be taken into account as well. For example, how many offshore structures are there that kittiwakes have not colonised (with/without measures to prevent kittiwakes nesting) vs. the number that have been colonised? A rather optimistic conclusion appears to have been drawn based on largely anecdotal evidence. Note that in the Dutch North Sea, 2/9 suitable offshore platforms held breeding kittiwakes by 5 years after the first reported breeding, and 3/9 platforms had breeding confirmed after 6 years, with adults prospecting at 3 other platforms, but 3 remained unoccupied (Camphuysen & de Vreeze 2005 ⁹ ; Camphuysen & Leopold 2007 ¹⁰). The likely timescale for colonisation of offshore structures needs to be taken into account, as well as the likelihood of colonisation occurring at all.
Paragraph 38	The Applicant should be asked to provide references to back up these statements. Competition, and thus condition of chicks fledging from colonies, will be a function of both the number of birds at the colony and the conditions at that colony (food supply, prevailing weather conditions, predation pressure, etc). For example, a small colony with a poor food supply could have greater competition and poorer fledging condition than a large colony with a plentiful food supply. This statement over-generalises.
Paragraph 51	The assumption that there is a 49% probability of fledglings becoming adults (as detailed in the calculations set out in paragraph 39) does not account for variability. We strongly recommend that a measure of variation is included based on published studies. There is also a need to account for additional mortality due to cumulative collision risk in these calculations.
Paragraph 51 & Table 1.2	The logic behind the calculation of the number of nests required to produce surplus recruits for the SPA population is not clear. This has been calculated as the predicted productivity at the artificial site (1.2) minus the recent productivity estimates from the SPA (0.6) but it is not clear why a comparison of these two numbers would give you the number of recruits available for the SPA, and seems rather optimistic, since birds fledging from the artificial sites will have a range of colonies within 500km where they could potentially recruit. The Applicant should be asked to clarify what evidence this calculation is based on. A more appropriate approach might be to calculate the number of fledglings required for a stable population (1.5 according to Cook & Robinson 2010; 0.8 according to Coulson 2017 (the Applicant's chosen figure); 1.5 is the precautionary estimate of the two), and

⁹ Camphuysen, C. J., & de Vreeze, F. 2005. Black-legged Kittiwakes nesting on an offshore platform in the Netherlands. *Limosa* 78: 65–74.

¹⁰ Camphuysen & Leopold, M. M. F. 2007. Drieteenmeeuw vestigt zich op meerdere platforms in Nederlandse wateren. *Limosa* 80: 153–156.

Reference	Comments
	count any fledglings over and above this figure as surplus fledglings available to the wider metapopulation of which the Flamborough and Filey Coast SPA forms a part.
Paragraph 54	The RSPB is not familiar with the details of the site at Lowestoft, but depending on exposure, putting the additional ledge lower down may make nests more susceptible to damage from wave action in stormy weather / high tides, which would affect productivity. There would need to be a detailed assessment of exposure to wave action in different conditions before making a decision on siting a new ledge (bearing in mind that severe weather events that cause increased wave action will only occur rarely, a remote sensing approach (e.g. a video camera recording the relevant part of the sea wall) might be the most efficient way to achieve this).

Monitoring of compensation measures

2.9 The RSPB is concerned at the general lack of detail concerning the monitoring necessary to assess success of any compensation measure. Below we have set out what we consider any robust monitoring package should include as a minimum. This applies to all species requiring compensation measures, albeit with a particular focus on kittiwakes and lesser black-backed gulls. Such monitoring should include:

- Regular checks of nest sites without disturbance should be carried out to record breeding progression (including chick survival) and adult changeover rates, from which trip durations and a proxy of chick provisioning rate can be calculated. A plan should be established to ensure egg-laying, hatching, fledging and possibly failure dates can be derived from the data as accurately as possible. Consideration of whether this can be carried out remotely should be integrated into any plans for artificial structures.
- An appropriate sample of birds should be ringed with a unique combination of colour-rings or darvic rings with alpha-numerical codes. For the colour rings, a re-sighting programme should be established. The facility to capture birds safely and with minimum disturbance should be integrated into the design of any artificial structure
- A programme of biotelemetry should be established whereby birds are fitted with tags, under license. The specifics of these tags will depend on the species, but an aim should be to gather GPS locational data, behavioural data (via accelerometers), flight altitude (via altimeters) and dive parameters (via Time Depth Recorders). The facility to capture birds safely and with minimum disturbance should be integrated into the design of any artificial structure.

- e) The absence of compensation measures for additional features where it is not possible to conclude no AEOI: gannet, guillemot, razorbill
- 2.10 We note that no additional information has been presented on this important issue. Our comments at Deadline 16 on this point therefore still stand.