



THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES

2010

**Natural England's End of Examination Position on the Applicant's Proposed
Compensatory Measures**

For:

The construction and operation of Hornsea Project Four Offshore Wind Farm, located approximately 69 km from the East Riding of Yorkshire in the Southern North Sea, covering an area of approximately 468 km².

Planning Inspectorate Reference EN010098

10th August 2022

1. Background

Natural England have engaged constructively and in detail with the Applicant on matters relating to compensation throughout the Evidence Plan Process, and into the Examination period for the proposed Hornsea Four offshore wind farm (OWF). Due to previous Secretary of State (SoS) rulings, the Applicant has determined that an adverse effect on integrity (AEol) in-combination with other plans or projects cannot be ruled out for black-legged kittiwake *Rissa tridactyla* (hereafter, kittiwake) at Flamborough & Filey Coast Special Protection Area (FFC SPA) and will require compensatory measures to be secured.

For species where AEol remains disputed, namely common guillemot *Uria aalge albionis* (hereafter, guillemot) and razorbill *Alca torda* from FFC SPA, compensatory measures are proposed 'without prejudice'. For FFC SPA Northern gannet *Morus bassanus* (hereafter, gannet) in principle measures were also identified, although following updates to the impact assessment for that species the potential for AEol in-combination with consented projects has now been ruled out. Following provision of the revised impact assessments at Deadlines 5 and 5a, Natural England consider that AEol cannot be ruled out for guillemot alone and razorbill in-combination with other consented plans and projects, thus requiring compensation to be secured for these species.

The Applicant has progressed several compensatory measures, with the aim of compensating for predicted impacts on kittiwake by the provision of an artificial nest site (ANS), and guillemot and razorbill through reducing bycatch mortality and undertaking predator (rat) eradication. A substantial body of work has been delivered to evidence and develop these measures, and the commitment of the Applicant to delivering ecologically sound compensation is not in doubt.

2. Natural England's summary position on the proposed compensatory measures

Despite the Applicant's ongoing efforts and the significant progress made, Natural England are not able to advise that the proposed measures can deliver the required compensatory benefits to the target FFC SPA species or can be considered adequately secured. The principal reasons for our conclusions are:

- **All measures**

All of the proposed measures are to be implemented remotely to the impacted site, and the accrual of any material benefit to the national site network is uncertain. While Natural England support the implementation of compensation at a species bio-geographic population scale, the likely level of benefit to the national site network should be carefully considered in conjunction with uncertainty around method effectiveness and project impacts when deciding on the required scale of compensatory measures (discussed further below and in Appendix 1). These concerns are intensified when the proposals are assessed against the predicted scale of the impacts on FFC SPA species when calculated using Natural England's advised methodology, for which see our Deadline 7 offshore ornithology position (B7) and Appendix 1. In addition, for some measures fundamental details remain outstanding e.g., the location of the measure.

- **Offshore ANS**

Natural England consider the implementation of an offshore ANS to be an appropriate measure for impacts on kittiwake from an ecological perspective, although we retain concerns around risk and longevity if only a single structure is provided.

- **Onshore ANS**

Natural England maintains that further onshore ANS implementation is of dubious benefit in the light of the planned provision of approximately 3,000 nest spaces on the Southern North Sea coast by other OWF projects. It has not been demonstrated that there is a sufficient pool of habitat-limited kittiwake recruits, suitable locations and/or prey availability available to meet and sustain the existing demand for this measure. Further, we note the significant difficulties existing projects are experiencing in securing and developing sites onshore.

We have consistently advised that this measure should not be taken forward, and as such, will not be providing further advice or feedback on these proposals.

- **Bycatch reduction**

We do not consider the proposed bycatch reduction technology to be proven and bycatch rates of auks within the selected fishery have not been reported due to restrictions on data sharing. There has been no evidence of razorbill being bycaught in the target fishery. Even with proven methods, bycatch reduction is inherently difficult to implement successfully, particularly over long timelines given the dynamic nature of fisheries. Despite these issues, we remain supportive of ongoing trials of the Looming Eye Buoy (LEB).

- **Predator eradication**

The scoping and selection of predator eradication sites remains in progress and fundamental evidence gaps remain regarding extant seabird populations, evidencing predation pressure, and quantifying the potential nesting habitat provision. Key elements such as community engagement are also still in early phases. The measure may be of limited benefit for guillemot, a species that tends to select cliff ledge nest sites that are generally inaccessible to rats. Accepting that guillemot may also nest in habitat more easily accessed by rats, it is not clear if other pressures are also acting at the shortlisted sites to deter breeding (e.g., limited prey availability). Predator eradication will also require a significant lead-in time before any benefits accrue and is another very difficult measure to implement successfully.

- **Seagrass restoration**

Natural England maintains that fish habitat (seagrass) restoration cannot be considered compensation, as a link between seagrass restoration and the productivity of the impacted species cannot currently be demonstrated or quantified. We also consider that it cannot be treated as a back-up to account for the high levels of uncertainty in other measures. This is also due to the likely timeframes to implementation, and uncertainty regarding the level of impact on target species. Nevertheless, we welcome and support the measure being retained for resilience/ecosystem enhancement and commend the general approach being taken.

3. Scale of proposed compensation

Due to the (now resolved) concerns with the offshore ornithology baseline, it has not been possible to determine the level of impact, and therefore the target level of compensation, until late in the Examination. As a result, we have been unable to progress discussions with the Applicant on the scale of compensation required and the measures' ability to deliver this within the Examination. We therefore provide an overview of this aspect here.

All the species populations requiring compensatory measures are qualifying features of FFC SPA. This site represents the single largest mainland seabird colony in the UK and the largest in England. For kittiwake and razorbill, FFC SPA is the sole SPA in England with these species as a qualifying feature. For guillemot, FFC SPA is one of only two SPAs in England with this

species as a qualifying feature, the other being Farne Islands SPA. Full information on the sites in the national site network for these species is given in REP4-056. Given the major contribution to the national site network made by FFC SPA, Natural England considers that the compensation requirements should be considered in the context of FFC SPA's value to the network as a whole, not just with respect to the site of impact.

The Applicant has proposed delivery at a 2:1 ratio for all measures, with this being met for auks by each measure (bycatch and predator eradication) delivering at 1:1 for both species. Specific justifications for this scale have not been provided and Natural England have raised that further discussion would be needed to ensure delivery was at an appropriate scale to account for uncertainties with each respective measure and for delivery remote from the national site network. It cannot be assumed that the same ratio, if taking a ratio approach, would be appropriate for each measure.

Alternative ways of considering the level of compensation required are also available. Alongside methodological uncertainties in compensation measures, when considering appropriate scales for compensation our general advice to decision-makers has been for measures to be designed with delivery of the upper confidence interval of impact in mind. This is to ensure that the level of compensation secured is sufficient to fully address the potential losses incurred throughout the lifetime of the project. An argument could also be made for compensation measures to be scaled at EIA level impacts where the target population for delivery is the EIA population.

As it currently stands, there is no evidence that the current bycatch measure could deliver any compensation for razorbill, and there is uncertainty in how effective predator eradication will be for guillemot. It may be that each of these measures will only benefit a single species, requiring the scale of delivery to be increased. Furthermore, as noted above the proposed locations for delivery (particularly for predator eradication) are also outside the national site network. Whilst evidence for connectivity with the network has been provided it does not consider and/or evidence the degree of connectivity, and therefore the likely benefit to the network that might be expected. The level of compensation provided should attempt to reflect this. Again, please see our more detailed advice in REP4-056.

Finally, based on the evidence currently available in the submitted material provided we consider it highly unlikely that there is sufficient capacity for these measures to deliver against the Natural England predicted impacts for auks (discussed further in Appendix 1). We can be somewhat more confident that the measure for kittiwake is of a sufficient scale to encompass its associated uncertainties and deliver compensation against Natural England predicted impacts.

4. Strategic compensation

In applying the precautionary principle, and when considering the legal basis for and requirements of compensatory measures, it is fundamentally difficult for Natural England to support experimental or speculative measures at a project-level scale. Regardless, Natural England do believe that there can be considerable merit in delivering well designed project-level compensation. Frequently the increased understanding or secondary benefits (e.g., net gain) are also of considerable nature conservation value. However, Natural England believe that the situation as it stands clearly demonstrates that compensatory measures are best

delivered strategically, as set out in our *'Approach to Offshore Wind'*¹. We consider that project level measures, necessarily restricted in scope by the predicted impacts of the specific project, retain high levels of uncertainty regarding delivery, appropriate timescales, potential for adaptive management, and scalability. Further, the burden of developing such measures where technological solutions may not yet exist is significant and may prove overly restrictive in the context of individual project timelines.

We note that the Applicant is similarly aligned in their view that compensation is best delivered strategically², enabling compensation projects to be scaled up, significantly increasing potential benefits while reducing uncertainty of delivery. We consider the benefits of the bycatch reduction and predator eradication measures in particular could be significantly enhanced if expanded in the future to a strategic level.

The recently published British Energy Security Strategy (BESS) commits to speeding up the deployment of offshore wind and Natural England broadly welcome the measures proposed in the Offshore Wind Environmental Improvement Package policy paper, including strategic compensatory measures and a centralised Marine Recovery Fund (MRF) to help facilitate delivery of those measures. However, it appears highly unlikely that this system will be in place in time for contributions to the MRF to be considered as an appropriately secured measure for Hornsea Four at the point of the consent decision. In this context, Natural England suggest that the project level measures continue to be pursued with anticipated use of the MRF best presented solely as an adaptive management measure at this time. This approach would allow the MRF to account for any shortfall in the project level measures; however, it would require a mechanism to be put in place to ensure that the 'switch' to MRF measures would not result in a shortfall of compensatory benefits for the impacted species.

- **Improving prey availability**

Natural England have long held the view that a primary pressure acting on English seabirds, and especially kittiwake, is the reduction in prey availability associated with commercial fisheries targeting forage fish (notably sandeels). A number of reviews have concluded that improving prey availability is likely to be the most effective way of compensating for offshore wind impacts on seabirds. However, forage fish management is highly complex, and an ecosystem-based approach is needed to safeguard sufficient prey resources for seabirds, whilst reducing the risk of unintended consequences (e.g. pressure on other fisheries). Nevertheless, improving the amount of prey remains the single strategic measure most likely to deliver significant benefits to FFC SPA seabird populations. We highlight that prey availability measures would also have the additional benefit of addressing the effective habitat loss that could result from auk displacement, by increasing the foraging resource within those areas that remain available.

Beyond fisheries management to increase prey availability, it is also clear that measures such as predator eradication and bycatch reduction would be best implemented at a strategic level due to the difficulty and scale required to ensure success. Both measures are likely to require cross- border or even international implementation in many instances. Natural England note that these measures are being developed by OWIC as case studies and potential pilot projects for the delivery of strategic compensation, though we highlight that no 'in-field' delivery elements have been identified as yet.

¹ Natural England. 2021. Natural England's Approach to Offshore Wind. Natural England Technical Information Note, TIN181.

² [EN010098-00 Ørsted's approach to strategic ecological compensation](#)

- **Avian influenza**

The ongoing avian influenza (AI) epidemic currently impacting seabird populations around the UK should also be borne in mind when considering the impacts of offshore wind NSIPs on seabirds. Now more than ever, our threatened seabird populations need to be protected from significant pressures so that they are able to recover from what may be devastating impacts for some species populations. In relation to offshore wind this requires a delicate balancing act with the requirement to combat climate change, which is a significant pressure acting on England's seabirds, by scaling up the provision of renewable energy.

Strategic compensation has the potential to reduce pressures on seabirds so that they may better cope with stochastic events such as AI while accommodating impacts arising from offshore wind development. The current evidence base strongly indicates that the most likely mechanism to deliver significant, effective, and timely strategic compensation for impacts on FFC SPA is by substantially increasing year-round prey availability.

Appendix 1: Detailed positions on the compensatory measures

Within this Appendix we provide a final position on our confidence in each of the proposed compensation measures with the exception of onshore ANS for kittiwake, which Natural England have consistently advised should not be taken forward [RR-029; Risk and Issues Log, REP6-057].

We also provide an update to the summary RAG tables provided in our Relevant Representations submission [RR-029, Appendix C] to highlight areas of agreement and outstanding concern. We have used the following criteria to assess each category in the summaries:

	NE has broad confidence in this aspect of the measure, though there may be some uncertainties that need addressing.
	There are significant concerns/uncertainties regarding this aspect of the measure, but they have the potential to be resolvable.
	Major uncertainties remain with this aspect of the measure, which if not resolved would make compensation undeliverable. NE cannot be confident at this stage that the measure is deliverable.

Advice on the proposed compensation measures

Kittiwake: Offshore artificial nest structures

An offshore Artificial Nesting Structure (ANS), either new or repurposed, is proposed as the primary compensation measure for kittiwake. We consider the measure has potential ecological relevance and is technically feasible. While it remains unclear if nesting habitat is a limiting factor for the breeding population of kittiwake in the southern North Sea due to the presence of uncolonized offshore structures, we acknowledge that in general, nesting habitat will be more limited offshore than onshore.

The results of targeted survey effort have been provided and a location for a repurposed platform has been identified. The Applicant has been proactive in progressing the necessary pathways for securing the structure; however, it cannot yet be considered secured. We also understand that the regulator of oil & gas structures (BEIS OPRED) has concerns about the acceptability of this measure should it relate to repurposing such a structure. The identified structure is located within the North Norfolk Sandbanks and Saturn Reef Special Area of Conservation (NNSSR SAC) which is in unfavourable condition. Further discussion will therefore be needed on the implications of this development for the designated site, which has unfortunately not been possible in the Examination. A location for a new structure has not been identified and/or secured as the Applicant's preference is to repurpose a structure, however a search area of high suitability has been identified using best available evidence.

Natural England's primary concern with this measure remains that a commitment has only been made to provide a single structure. We consider this to be high risk, particularly for a new structure. Multiple structures 'spread the risk' of non-colonisation. We note that the compensation proposed and accepted by SoS for Hornsea Three included the provision of four structures in at least two locations, each capable of compensating for the predicted impact at a 1:1 ratio, as a way of managing this risk. We welcome that the Applicant has increased the lead in time to three years prior to operation but note that this remains less than the four years consented on other projects, and that the Applicant also now suggests that a timescale need not be conditioned at all [REP5-017]. We do not consider that this approach (both in terms of lead in and number of structures) would afford the Secretary of State sufficient confidence that the compensation would be delivering prior to impact

occurring, as recommended in the draft Defra guidance³, and it would significantly limit the resilience of the measure over the lifetime of the project. Adaptive management will also be more challenging offshore; lower resilience in the measure could increase the likelihood of it being needed. We do acknowledge that increasing structure provision would significantly increase the delivery costs of this measure.

A further important consideration if the measure relates to a repurposed structure is the presence of existing breeding kittiwakes. Monitoring will be needed to establish their abundance and productivity. The repurposed structure might reasonably be expected to increase the productivity of existing birds, but it would only be the increase compared to pre-intervention baseline that we could consider as additional, along with any productivity arising from ‘new’ nesting pairs.

With respect to the scale of the measure, following Natural England’s advised approach to the ornithological assessment results in a Project alone impact of 71 (min 22, max 152) adult kittiwake per annum to be compensated for. Using the Applicant’s calculation methodology presented in [REP1-063], 190 nests and/or breeding pairs would be required to deliver the central estimate impact (71) at a 1:1 ratio. The Applicant predicts that an offshore structure would be able to support ~750 nests. We note that a single structure could therefore be expected to support the Applicant’s proposed 2:1 ratio on NE impact values for both the central estimate (380 nests) and the maximum predicted impact (712 nests), though this should not be taken as endorsement of that ratio. As the EIA-level impact for kittiwake (92) is fairly close to the HRA impact apportioned to FFC SPA (71) in the case of Hornsea Four, this increases the likelihood that there would be sufficient provision to compensate at this scale, thus accounting for the uncertainty in compensation being delivered to the wider East Atlantic population which FFC SPA sits within, rather than directly to the impacted site. It is important to note that full colonisation cannot be assumed – were it to occur the ANS would be one of the largest artificial colonies ever recorded. Nevertheless, whilst we maintain our concerns regarding the level of risk and lack long-term resilience of provision of a single structure, we consider that provision of ~750 nests offshore offers a reasonable prospect of delivering adequate compensation for kittiwake.

We acknowledge that the nest site provision is considerably lower than that calculated for Hornsea Three (467 nests for a central impact estimate of 73 kittiwake). However, we consider this acceptable because we can be reasonably confident that nest limitation will be greater offshore than onshore and that higher productivity rates could be achieved offshore.

Offshore nest structures	
Overall confidence in the measure	Natural England consider the measure to be ecologically and technically viable. A location for repurposing a structure has been identified but is not secured, and further consideration will be needed on any designated site implications of the location. A location has not been identified for a new structure beyond an area of suitability. The scale of compensation required is not agreed between NE and the Applicant, and we remain concerned about the provision of a single structure, however we are reasonably confident that the measure is capable of delivering against NE advised values.
End of Examination position	
Theoretical merit to deliver compensation	Natural England consider that the measure has the potential to increase the number of recruits into the wider kittiwake population, although the scale of benefit to the impacted site will be indirect and is likely to be unquantifiable.
Technical	Logistics will be challenging offshore but technically viable options are likely to be

³ [Best practice guidance for developing compensatory measures in relation to Marine Protected Areas \(defra.gov.uk\)](https://www.defra.gov.uk/best-practice-guidance-for-developing-compensatory-measures-in-relation-to-marine-protected-areas)

feasibility	available for providing new structures and/or repurposing existing ones.
Agreed compensation level	Impact levels have now been calculated; however, compensation levels are not agreed. Based on Natural England's advised approach, the impact of the Project alone to be compensated for is 71 (22-152) adult kittiwake per annum (as opposed to 23 for the Applicant's approach).
Scale/extent of measure	<p>The proposal is for a single artificial nest structure (ANS), either new or repurposed. The Applicant predicts a single structure could support a colony of ~750 kittiwake pairs.</p> <p>Whilst we acknowledge that the number of nest spaces being provided is broadly acceptable, we remain concerned about the long-term resilience of single structure provision (See below).</p>
Timing: Deliverable before impact	<p>The Applicant has increased the lead in time to 3 full breeding seasons but has also suggested that a timeframe might not need securing at all.</p> <p>We reiterate that kittiwake do not usually breed until they are 4+ years old, and therefore breeding recruits will not enter the biogeographic population until that point.</p> <p>Colony establishment would likely be occurring in the early years of operation, and until the target population/productivity is met a mortality debt will accumulate. Therefore, although the measure will be in place prior to operation, a decreased lead in time increases the likelihood that the measure will not be delivering compensation at the scale required before impacts occur.</p>
Location of measure	A comprehensive spatial mapping exercise considering agreed search criteria has been undertaken and revealed areas of high suitability. A structure for repurposing has been identified, however it is not yet secured and is located within the NNSR SAC. Further discussion will be needed on the implications of the measure for the designated site. A search area for a new structure has been identified but a final location has not been identified/progressed as the Applicant's preference is to repurpose a structure.
Long term implementation	We remain concerned that the provision of a single structure does not build in resilience over the lifetime of the project. Adaptive management will be more difficult offshore, and the provision of a single structure increases the likelihood of it being needed. Remote monitoring may be possible, but data quality will need to be evidenced.
Success criteria/Ability to prove additionality	<p>As nest availability has not been proven to be a limiting factor, new colonies will need to have increased productivity to deliver additionality.</p> <p>Additionality will also depend on whether new or repurposed structures are implemented. If existing colonies (i.e., decommissioned structures) are being maintained additionality must be carefully considered, as should possible consolidation of small colonies across numerous existing structures onto a new structure that may prove to be more attractive to nesting birds. Maintaining a colony with no productivity increase or relocating existing breeding birds would not deliver compensation.</p> <p>To account for this, monitoring efforts will need to be wider in scope than just the artificial structure, and the current understanding of existing offshore colonies and their productivity will need to be built on prior to implementation of the measure to fully evidence the additional benefit of a new or repurposed structure. This will be challenging offshore.</p>
Suitable as sole measure for target species	Though see notes on long-term implementation above.

Auks (guillemot and razorbill)

The compensatory measures proposed for auk compensation are mammalian predator eradication and bycatch reduction. The commitment to progressing multiple measures for auk compensation is welcomed, as whilst both measures have theoretical merit, neither measure can be considered adequately secured due to outstanding uncertainties regarding feasibility, effectiveness, scale, and location.

With respect to bycatch, razorbill have not been encountered in the trial results presented to date so the measure cannot be considered as an option for this species at this stage. Equally, we consider it possible that razorbill are more likely to benefit from invasive mammal eradication than guillemot due to their more frequent preference for nesting at sites easily accessible by rats. This gives further weight to progressing multiple measures in the event that SoS seeks compensation. Nevertheless, whilst progressing multiple possible measures helps to spread the risks around one of those measures not being deliverable, it does not overcome them.

Principally, Natural England are concerned that the proposed measures may not be able to achieve a sufficient scale of implementation to compensate for the predicted impacts. According to Natural England's advised methodology, impacts to guillemot fall within the range of 97-2,232 adult mortalities per annum, while razorbill falls within 10-228 adult mortalities per annum. We acknowledge that the higher ends of these ranges, based on a 10% mortality rate, represent an extreme worse-case scenario. Using a more likely mortality rate of 5% with 70% displacement gives suitable values with which to evaluate the compensatory requirements as 1,131 for guillemot and 114 for razorbill.

We also highlight that if the reasons for AEoI include the effective habitat loss of functionally linked sea areas that have an important role in the life cycle of FFC SPA auks, as we consider they may well do, bycatch reduction and predator eradication measures are not of a nature that would address this aspect of the impact.

We note that survey evidence submitted by the Applicant at Deadline 5 [REP5-019] indicated the presence of breeding auks on offshore platforms. Given the outstanding uncertainties with the auk compensatory measures and the scale of compensation required for these species, we consider that there would be merit in exploring the potential for adapting part of an ANS for use by auks, either as an initial measure or as adaptive management. We have previously highlighted this option in our Risk and Issues Log at Deadline 6 [REP6-057] but have not discussed the possibility directly with the Applicant.

i) Bycatch reduction

The bycatch reduction measure aims to support auks by reducing their levels of bycatch in commercial fisheries and thus retain more birds in the population. A target fishery has been identified as a potential auk bycatch hotspot, and there is some evidence to suggest that reducing direct mortality here might possibly form a basis for compensatory measures. We retain concerns that whilst delivering compensation via bycatch reduction is theoretically viable, significant uncertainties remain which we consider to be extremely high risk.

Natural England highlights that the Applicant's bycatch reduction proposal relies on a single technological intervention, the looming eyes buoy (LEB). The Applicant has reported on the first year of their trial of this technology, however, we must reiterate that **Natural England do not consider a single year of data collection to be sufficient to draw meaningful conclusions on LEB efficacy.**

The Applicant has calculated a relative 25% reduction in bycatch of guillemot by comparison of the percentage of LEB treated nets (42.9%) versus control nets (57.1%) that caught one or more guillemot. **Natural England consider this calculation to be methodologically inappropriate and**

of no value in assessing the efficacy of the LEB. To put the value of this calculation into context, with no underlying data on actual bycatch being presented, we could assume that the trial may have found 3 guillemots bycaught in treated nets compared to 4 in the control nets for a 25% reduction. We can surmise this is not the case using the Applicant's calculations of the number of vessels that would be required to compensate their predicted impacts. However, the fact remains that the trial data is highly opaque, and such a simple comparison of the treated and untreated nets pooled across the entire trial period is not informative and is potentially misleading. Furthermore, there is no assessment of statistical significance and therefore even the reduction in bycatch as reported may be coincidental or due to some other factor(s). It is hard to escape the conclusion that the data analysis appears to be fundamentally flawed. Accordingly, we are concerned that the results are in no way comparable to the findings of peer-reviewed studies that utilise established bycatch data analysis techniques.

Natural England maintain that **it is not possible to assess the potential scale of the measure** without a proven implementation method with fully quantified and independently ratified success rates, and a quantified assessment of actual bycatch rates at the target fishery with consideration given to variation across vessels and other co-variables (e.g., gear specifics, environmental conditions). Calculation of the absolute bycatch reduction that might be possible will be required to understand the upper limits of compensation potential (maximum number of individuals that could be saved from direct mortality as bycatch). We cannot currently advise on the potential for bycatch reduction to compensate for any given level of impact. It is also unclear whether the confidentially agreements that have (necessarily) hampered the present analysis would continue to be required once the measure was implemented, preventing the data from ever being publicly available even within the confines of a steering group. Natural England would not be able to support this approach both on the grounds of transparency (see Annex A, Point I of this submission) and the inability to form meaningful success criteria and/or demonstrate with independent verification that the compensation was delivering.

In summary, we do not consider the LEB trial and subsequent data analysis to be sufficiently transparent or robust at the current time to draw any conclusion on the technologies ability to significantly reduce bycatch. A multi-year trial and subsequent appropriate statistical analysis of the data will be required. Further, Natural England will need to be able to undertake a sufficient audit of that data and analysis or be suitably assured that an independent third party has reviewed and approved the findings of the trial. Noting that several years are available between consent and operation of the windfarm, Natural England do remain fully supportive of the ongoing LEB trial and hopeful that it will ultimately be capable of delivering quantifiable reductions in bycatch of auks and other marine birds. However, auk bycatch reduction is not currently demonstrated as being a viable compensation measure.

Bycatch reduction	
Overall confidence in the measure	<p>Whilst delivering compensation via bycatch reduction is theoretically viable, Natural England remain of the view that there is currently no proven method to reduce bycatch of auks and hence deliver the compensation. The measure relies on a single method which we consider to still be at the trial phase. We cannot make any assessment of the scale of measure that might be achievable without a proven implementation method, and a quantified assessment of bycatch levels at the target fishery.</p> <p>However, Natural England are supportive of the ongoing trials of the LEB technology and consider that efforts to develop and deliver bycatch reduction for auks could represent an important component in the eventual provision of compensatory measures for these species.</p>
End of Examination position	

Theoretical merit to deliver compensation	<p>The approach has theoretical merit, assuming bycatch mortality can be identified and subsequently reduced at an appropriate scale to deliver sufficient population level benefits to auks.</p> <p>We welcome the work undertaken so far to develop a method to reduce auk bycatch. We remain hopeful that the implementation of this method could provide compensation for auk species, but it must be noted that we consider the trial phase to be ongoing and the technology to be unproven at this time.</p>
Technical feasibility	<p>We consider that the Applicant has proven they can implement the LEB technology on a number of vessels in an active fishery, although long-term application and LEB efficacy remains unproven.</p> <p>We retain concerns that the required scale of implementation might not be possible, i.e., there may not be enough vessels operating in relevant fisheries to adequately compensate for predicted impacts.</p>
Agreed compensation level	<p>Natural England do not agree with the Applicant's estimated impacts on auks, therefore, we do not agree that an appropriate level of compensation is being planned for.</p> <p>Following Natural England's advised approach, we consider that compensation measures should be judged against their ability to compensate for 1,131 guillemot and 114 razorbill mortalities per annum.</p> <p>It is not clear how many vessels operate in fisheries where the LEB could potentially be applied and reduce bycatch, assuming it is proven effective. Further, it is not clear from the Applicant's submissions that it will be possible to compensate at a 1:1 ratio for either species using bycatch reduction. Natural England believe that it is highly unlikely to be possible.</p> <p>The Applicant suggests 22 vessels will be engaged in the next phase of the trial. This will be insufficient to deliver the scale of compensation we expect to be required.</p>
Scale/extent of measure	<p>The Applicant considers that a 2:1 compensation ratio could be achieved across the auk package by each measure delivering 1:1 for both species.</p> <p>There is currently no evidence that the measure could reduce razorbill bycatch and contribute to compensation for this species.</p> <p>Natural England cannot estimate the potential scale of compensation that could be delivered for guillemot by the measure, primarily due to the lack of data transparency. Bycatch rates in the fishery are not available and LEB efficacy remains unknown.</p> <p>The Applicant has not defined a theoretical annual maximum bycatch reduction that they believe could be delivered.</p> <p>Natural England consider it unlikely that the predicted impacts could be fully compensated by bycatch reduction.</p>
Timing: Deliverable before impact	<p>Natural England advise that a multi-year trial of the LEB must be undertaken before any assessment of efficacy for delivering compensation can be made. As the results of this trial cannot be known until it is reported on and reviewed, it is uncertain that the measure can be implemented prior to impact.</p> <p>If proven successful we consider that compensation would arise as an immediate and direct population effect, i.e., birds are retained in the population, thus compensating on a like for like basis with due consideration to the age profile of birds that are not bycaught as a result of the intervention.</p>
Location of measure	<p>Natural England agree with the reasoning for selection of the identified locations.</p> <p>We consider that without a full understanding of the potential scale of implementation and delivery it is not possible to determine if the fisheries identified are sufficient to deliver the required level of compensation. Further locations (fisheries) may need to be identified.</p> <p>The bycatch reduction method will need to be proven in the specific fishery for us to</p>

		have confidence in the efficacy of the method. If multiple fisheries are targeted, existing bycatch within those specific fisheries will also need to be fully understood.
Long term implementation		<p>Fisheries are highly dynamic. Gear use, fishing intensity, and focal species may change within or between seasons according to a variety of market drivers and regulation. This could alter bycatch levels, require new fisheries to be identified and/or require new bycatch reduction methods to be developed.</p> <p>Adaptive management must consider the risk that the target fisheries will not persist over the lifetime of the project.</p>
Success criteria/Ability to prove additionality		<p>If bycatch reduction can be achieved, then success criteria are relatively straightforward to define as the method reduces direct mortality.</p> <p>However, the question of additionality may become pertinent if other bycatch reduction initiatives are rolled out at the industry level.</p>

ii) Predator eradication

The predator eradication measure aims to allow auk population growth by removing mammalian Invasive Non-Native Species (INNS), in this case, rats, from islands or islets that have suitable unutilised breeding habitat for auks. Following initial eradication the measure includes ongoing monitoring, biosecurity protocols and maintaining those locations rat-free status by further eradication efforts if required.

The evidence for predator eradication being effective for auks is highly limited, but Natural England agree that the measure has theoretical merit, chiefly for razorbill. However, we retain a number of concerns about the measure, which we consider is still in the early phases of development.

- The specific locations – and therefore also number of locations - for implementation have not yet been confirmed. This is due to the site selection process being ongoing. Crucially, this precludes a full feasibility assessment of the identified sites being undertaken. As such, Natural England cannot advise on the potential value of predator eradication being undertaken at the short-listed locations.
- Estimates of additional nesting habitat that could be made available is preliminary and incomplete. It does not properly consider if that habitat is accessible to rats. Therefore, the potential scale of the measure remains vague.
- It is frequently assumed or implied in the Applicant's submissions that predation is the pressure acting to prevent auks from breeding at sites where they are not currently present. The impact of other pressures has not been fully considered. It cannot be assumed that removal of rats at a site will necessarily lead to colonisation by auks.
- Although in some cases habitat overlap and even evidence of interaction between auks and rats has been found, we do not consider this adequate to infer that predation pressure is necessarily suppressing auk populations or restricting their available nesting habitat. This is particularly the case where rats have been found at low densities.
- Community engagement to date has been relatively limited, and insufficient to assert (as the Applicant does) that there is a significant level of support from within these small populations. Community support is vital for predator eradication projects.

The potential scale of compensation achievable cannot yet be determined with any certainty, nor can the compensation be considered secured prior to the identification of delivery locations with secured land rights. We therefore do not have confidence at this stage that the measure will be deliverable.

Predator eradication	
Overall confidence in the measure	<p>Whilst delivering compensation via predator eradication is theoretically possible, specific locations for implementation have not been fully scoped and identified, meaning it is still not certain that the identified locations represent sites where a predator eradication project would be feasible, and critically, of significant measurable benefit to auks.</p> <p>We therefore cannot have certainty that the measure will be deliverable or make a meaningful assessment of the scale of measure that might be achievable. However, Natural England are encouraged that the relevant necessary work to prove that the measure is feasible, and deliverable, is ongoing and the Applicant has engaged acknowledged experts to this end.</p>
Natural England comment	
Theoretical merit to deliver compensation	<p>Removing predators could allow for colonisation of new areas or reduce predation pressure on existing colonies, and thus increase both breeding populations and productivity of seabirds. However, evidence of predator eradication being effective for guillemot and razorbill specifically is highly limited. These species have not been the target beneficiary for previous predator eradications.</p> <p>The benefits will be felt at the wider biogeographic level rather than at the impacted site.</p>
Technical feasibility	<p>Proven techniques exist for the eradication of rats on islands, and ongoing biosecurity measures can help maintain rat free status. However, eradication programs are very challenging and can be prone to delays and other issues arising from unforeseen circumstances. Community support is also critical to success.</p> <p>Natural England are encouraged that the Applicant has engaged acknowledged experts in the field of predator eradication to undertake the measure and have committed to following established best practice guidance.</p>
Agreed compensation level	<p>Natural England do not agree with the Applicant's estimated impacts on auks, therefore, we do not agree that an appropriate level of compensation is being planned for.</p> <p>We consider that compensation measures should be judged against their ability to compensate for 1131 guillemot and 114 razorbill adult mortalities per annum.</p> <p>Although a full understanding of the potential nest site provision arising from the predator eradication method is not yet available, it is clear from the preliminary work that the sites currently identified would be insufficient to provide compensation at a 1:1 level.</p>
Scale/extent of measure	<p>The potential scale and extent of the measure remain uncertain. Although the area of search has been refined to the Bailiwick of Guernsey it is not clear that the sites shortlisted will offer sufficient opportunity to deliver meaningful benefits to auks or the level of compensation that Natural England consider necessary.</p>
Timing: Deliverable before impact	<p>While Natural England agree that it might be possible to carry out the predator eradication process prior to impacts occurring, there are a myriad of factors that may prevent this. Further, as many small islands and islets appear to be in scope for eradication, we suggest that the difficulty in achieving a quick eradication may be increased. For example, it is already apparent that inclement weather has prevented initial scoping and survey work to be undertaken at a number of these sites.</p> <p>Natural England also highlight that achieving the eradication of predators is not the measure of success. We do not consider implementation before impact to be analogous to delivering compensation before impact. This compensation measure will not be delivering until the required number of chicks are being produced and have reached age of first breeding (i.e., recruited into the breeding population). Guillemot tend to mature at age 5-6 and razorbill at 4-5 years old. Further, assuming that predator eradication does enable colonisation of new habitat, this colonisation is likely to be incremental, i.e., full occupancy may not be achieved quickly.</p>

	<p>We consider that the measure therefore retains significant risk of accumulating a mortality debt once the windfarm is operational, and this will require consideration in light of any potential buffering of this effect that may be possible from other measures.</p>
Location of measure	<p>Final locations for predator eradication are yet to be determined, and Natural England consider it unlikely that enough sites have been short-listed to deliver the scale of compensation we expect to be required. It is likely that a number of short-listed sites will not prove to be feasible for predator eradication, exacerbating our concerns.</p>
Long term implementation	<p>Natural England note that biosecurity plans have been acknowledged as being essential to the measure's long-term success, and we welcome the commitment to maintaining predator free status of sites following initial eradication rather than reverting to control.</p> <p>Adaptive management must consider the possibility that even if predator eradication is successful, auk populations and productivity may not respond in a manner that could be deemed to be delivering compensation.</p> <p>Natural England consider that there may be benefits to seabirds other than the target auks, and the Applicant should endeavour to evidence any such benefits.</p>
Success criteria/Ability to prove additionality	<p>Assessing and quantifying success for this measure will require comprehensive monitoring using established methodologies to ascertain abundance and productivity estimates. A comprehensive multi-year baseline must be collected to assess the results of any intervention against. A full understanding of all local populations and their productivity will be required, and ongoing monitoring of these populations alongside any new colonising populations will be essential to understand if redistribution of breeding birds is occurring.</p> <p>Increased productivity compared to the pre-eradication baseline of existing colonies and productivity arising from new (i.e., not considered to have just moved) breeding birds at locations where the measure has reduced predation pressure can both be considered as contributing compensation.</p> <p>Proving additionality raises similar questions as have been considered for kittiwake ANS. It will be very difficult to ascertain if any breeding birds are additional or have simply moved. Wider monitoring may provide some insight.</p> <p>Natural England note that some predator eradication efforts are already underway, and the Applicant is providing a level of support to those projects. We do not consider any benefits arising from those projects as additional.</p>

Annex A: Natural England check list for compensatory measure submissions

Natural England has developed a checklist of those aspects of compensatory measures that need to be described in detail when developers are submitting or updating applications where impacts on MPAs are anticipated. Whilst not exhaustive, it lists key areas where sufficient detail is needed to provide the Secretary of State with appropriate confidence that compensatory measures can be secured.

- a) What, where, when: clear and detailed statements regarding the location and design of the proposal.
- b) Why and how: ecological evidence to demonstrate compensation for the impacted site feature is deliverable in the proposed locations
- c) For measures on land, demonstrate that on ground construction deliverability is secured and not just the requirement to deliver in the DCO e.g. landowner agreement is in place. For measures at sea, demonstrate that measures have been secured e.g. agreements with other sea or seabed users.
- d) Policy/legislative mechanism for delivering the compensation (where needed)
- e) Agreed DCO/DML conditions
- f) Clear aims and objectives of the compensation
- g) Mechanism for further commitments if the original compensation objectives are not met – i.e. adaptive management
- h) Clear governance proposals for the post-consent phase – we do not consider simply proposing a steering group is sufficient
- i) Ensure development of compensatory measures is open and transparent as a matter of public interest, including how information on the compensation would be publicly available
- j) Timescales for implementation especially where compensation is part of a strategic project, including how timescales relate to the ecological impacts from the development
- k) Commitments to ongoing monitoring of measure performance against specified success criteria
- l) Proposals for ongoing 'sign off' procedure for implementing compensation measures throughout the lifetime of the project, including implementing feedback loops from monitoring.
- m) Continued annual management of the compensation area including to ensure other factors are not hindering the success of the compensation e.g. changes in habitat, increased disturbance as a result of subsequent plans/projects