



Written Representation
for the
Royal Society for the Protection of Birds
Annex B
Derogation case: bycatch reduction

Submitted for Deadline 2

29 March 2022

Planning Act 2008 (as amended)

In the matter of:

**Application by Hornsea Project Four Limited for an Order
Granting Development Consent for the Hornsea Project Four Offshore Wind
Farm**

Planning Inspectorate Ref: EN010098

RSPB Registration Identification Ref: 20029909

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1. Introduction

Scope of submission

- 1.1. This submission sets out the RSPB's comments based, in particular, on the following documents submitted by the Applicant as part of its original application documents:
 - APP-194: B2.8.1 Volume B2, Annex 8.1: Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA): Bycatch Reduction: Ecological Evidence
 - APP-195: B2.8.2 Volume B2, Annex 8.2: Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA): Bycatch Reduction: Roadmap
- 1.2. We note here that at Deadline 1 the Applicant made further submissions in relation to its bycatch reduction compensation proposals. We will respond to the following documents at Deadline 3 once we have had the opportunity to review the new information provided:
 - REP1-064 G1.42: Gannet Bycatch Reduction: Evidence Review
 - REP1-020/REP1-021: Guillemot and Razorbill Bycatch Reduction Roadmap (clean and tracked)

2. RSPB expertise and experience on bycatch reduction

What is bycatch?

- 2.1. Bycatch is the term used when animals, such as birds, drown as a result of being caught on fishing hooks and entangled in nets. It is the biggest at-sea threat facing seabirds globally¹.

Bycatch and the RSPB

- 2.2. The RSPB, through its hosting of the BirdLife International Marine Programme since 2004, has long- running and substantive expertise in mitigating seabird bycatch from both a grassroots and policy perspective. We have successfully pushed for seabird bycatch mitigation requirements in all the major tuna Regional Fisheries Management Organisations and established the 'Albatross Task Force' in South America and southern Africa, which has led to large reductions in seabird bycatch in target fishing fleets^{2,3}. We are active participants in the Seabird Bycatch Working Group of the Agreement on the Conservation of Albatrosses and Petrels (ACAP), helping to review and determine best practice ways to reduce the impacts of fisheries on seabirds, and in the past eight years have driven efforts to identify technical means of mitigating gillnet bycatch of seabirds.
- 2.3. This recent work to develop gillnet bycatch mitigation has placed the RSPB at the forefront of efforts to resolve this ongoing conservation issue, not only through our own research and development, but also by drawing together international experts across specialisms at two international workshops and creating cross-disciplinary collaborations with scientists and industry, publishing our work in the peer-reviewed literature^{4,5}. This has most recently led to the development of the 'Looming Eyes Buoy'⁶ in collaboration with Fishtek Marine, which we are testing through trials in collaboration with gillnet fishers in Cornwall, and also in a gillnet fishery in Iceland. The RSPB is also testing a similar measure – predator-shaped kites attached to gillnets – in Cornwall and in Lithuania through collaboration with the local BirdLife partner. Our assessment of the efficacy of those measures will be based on the results of these trials and published in the peer-reviewed literature, as we would expect for any proposed mitigation measure before wider implementation.
- 2.4. The RSPB continues to engage proactively on seabird bycatch in the UK as the scale of the issue has become more evident and we remain committed to collaborating with government and industry to apply what we have learned from tackling seabird bycatch across the globe

¹ Dias, M. P., Martin, R., Pearmain, E. J., Burfield, I. J., Small, C., Phillips, R. A., ... & Croxall, J. P. (2019). Threats to seabirds: a global assessment. *Biological Conservation*, 237, 525-537.

²Maree, B.A., Wanless, R.M., Fairweather, T.P., Sullivan, B.J. and Yates, O. (2014) Significant reductions in mortality of threatened seabirds in a South African trawl fishery. *Animal Conservation*, 17, 520-529.

³Da Rocha, N., Opper, S., Prince, S., Matjila, S., Shaanika, T.M., Naomab, C., Yates, O., Paterson, J.R.B., Shimooshili, K., Frans, E., Kashava, K., and Crawford, R. (2021) Reduction in seabird mortality in Namibian fisheries following the introduction of bycatch regulation. *Biological Conservation*, 253, 108915

⁴ Martin, G. R., & Crawford, R. (2015). Reducing bycatch in gillnets: a sensory ecology perspective. *Global Ecology and Conservation*, 3, 28-50.

⁵Field, R., Crawford, R., Enever, R., Linkowski, T., Martin, G., Morkunas, J., Morkune, R., Rouxel, Y and Opper, S. (2019) High contrast panels and lights do not reduce bird bycatch in Baltic Sea gillnet fisheries. *Global Ecology and Conservation*, 18, e00602.

⁶ Rouxel, Y., Crawford, R., Cleasby, I. R., Kibel, P., Owen, E., Volke, V., ... & Opper, S. (2021). Buoys with looming eyes deter seabirds and could potentially reduce seabird bycatch in gillnets. *Royal Society open science*, 8(5), 210225.

to bring it to an end. We have been closely engaged with seabird bycatch policy and research in the UK through technical advisory and wider stakeholder roles as a UK-wide Bycatch Mitigation Initiative (formerly UK Seabird Bycatch Plan of Action) has been developed. We continue to advocate for a strong and robust regulatory framework at a policy level to ensure that practical mitigation and monitoring measures are implemented by the UK's fisheries administrations to minimise and where possible eliminate sensitive species bycatch in line with *inter alia* the UK Fisheries Act ecosystem objective.

3. Overview of guillemot, razorbill and gannet bycatch

Bycatch in UK

- 3.1. Thousands of threatened seabirds are drowning every year in UK waters due to bycatch. Some birds, like fulmars, get caught when they try to steal food from baited hooks. Others, like guillemots, can get entangled and drown when they dive underwater to hunt and encounter fishing nets. Current mortality estimates for seabird bycatch in UK waters come from the UK's Bycatch Monitoring Programme (BMP) which only includes UK-registered vessels and a very small proportion of overall fishing effort (see Northridge et al. (2020)⁷ for detail and history of the programme). The BMP historically targeted specific static net and midwater trawl fisheries with small cetacean bycatch issues and was later expanded to meet EU reporting requirements and monitor seabird bycatch more explicitly. In 2020, Defra published a study by Northridge et al. (2020) which used the BMP data to reveal the first UK-wide estimates of seabird bycatch mortality in UK waters.
- 3.2. Based on the results of the Northridge et al. (2020) study, most seabird bycatch is thought to happen in longlines – literal 'long lines' carrying thousands of baited hooks and in gillnets – walls of nylon netting. At least ten seabird species have been recorded as bycatch in UK waters (many of which are included in the Red or Amber Lists of Birds of Conservation Concern) and include guillemot, razorbill and gannet. This study estimated that the most frequently caught species are fulmar in longlines with an estimated 2,200-9,100 individuals accidentally caught and killed each year, and guillemots in gillnets with somewhere between 1,800-3,300 individuals estimated to be killed as bycatch by UK-registered vessels each year.
- 3.3. Trawling is when a net is pulled using warp lines (cables) by one or more boats through the water. Data from the BMP on seabird bycatch mortality estimates in midwater (or pelagic) trawls has generally come from vessels targeting bass and sprat operating in coastal waters in the English Channel. These fisheries operate seasonally, although the bass Channel fishery is reported to no longer be active. Out of the ten seabird species reported as bycatch by UK-registered vessels through the BMP, three were recorded in mid-water trawls (cormorant, guillemot and razorbill). Northridge et al. (2020) states that,

"UK vessels operating in the bass fishery generally worked with the trawl headline in close proximity to the surface, which can cause disturbance and may encourage alcids and cormorants to dive as the trawl approaches which may also lead to higher bycatch rates than fisheries where the gear is towed well below the surface."
- 3.4. Bycatch action in the UK is constrained by a lack of data. Although recent studies provide a much needed, broadscale picture of seabird bycatch in the UK, there remains considerable uncertainty around the true nature and scale of the problem resulting from:
 - Insufficient monitoring of fishing activity at sea, limiting understanding of bycatch risk
 - Inadequate data on bycatch rates due to inadequacies in the existing Bycatch Monitoring Programme associated with:

⁷ Northridge, S., Kingston, A. and Coram, A. (2020) Preliminary estimates of seabird bycatch by UK vessels in UK and adjacent waters. Report prepared for the Department for Environment Food and Rural Affairs (Project Code ME6024)

- Low observer coverage across total fishing effort – The UK’s Bycatch Monitoring Programme achieves observer coverage of just 1-2% annual effort in longlines and <1% of annual effort in static nets (including gillnets) - the riskiest fleets for seabird bycatch in the UK – and roughly 5% of annual UK midwater trawl effort, which falls well below recommended best-practice levels;⁸
 - Lack of data from small-scale vessels – The majority of the static net fleet – over 1,500 vessels – is <10m in length, with no requirement to carry a Vessel Monitoring System. The size of the vessels also makes it challenging to accept human observers;
 - A lack of data from non-UK registered vessels which are not covered by the UK’s observer programme;
 - Poor spatial, seasonal and gear coverage of bycatch sampling effort in UK waters;
 - Sampling bias towards those vessels that voluntarily permit onboard observers.
- Poor understanding of the at-sea distribution of seabirds, but especially in the winter (where there is the suggestion of higher levels of bycatch in static nets based on the limited existing data set⁹).
- 3.5. The two gear types responsible for the majority of the bycatch recorded in the UK are demersal longlines (targeting demersal fish species - that live on or near the bottom of the sea) and static nets.
- 3.6. For longlines, ACAP has identified a suite of best practice mitigation measures to reduce bycatch, though it should be noted that there are challenges with implementing some of these measures in the particular longline gear used in the UK, which utilises floats as well as weights to target hake. Exploring and addressing these challenges is an identified research priority of ACAP’s Seabird Bycatch Working Group. It should also be noted that apart from the hake longline fishery that operates offshore off north-west Scotland (a mix of UK and foreign-flagged vessels), there is relatively little effort from longlines elsewhere in the UK.
- 3.7. Static nets (including gillnets), in spite of vastly increased research effort in recent years, do not have an identified suite of effective, best practice technical bycatch reduction options¹⁰ and, as such, present much bigger challenges in terms of delivering compensatory benefits through reduced bycatch mortality. While BirdLife/RSPB continue to pursue potential solutions (including development of an above water ‘looming eyes’ deterrent device and the testing of predator-shaped kites, noted above¹¹), the only existing method that will

⁸ The minimum levels of observer coverage needed to obtain ‘reasonably good estimates of total bycatch’ are at least 20% for common species and 50% for rare species (Babcock, E., Pikitch, E. & Hudson, C. (2003). How much observer coverage is enough to adequately estimate bycatch.) and in some cases, may need to be even higher (see Wakefield, C. B., Hesp, S. A., Blight, S., Molony, B. W., Newman, S. J., & Hall, N. G. (2018). Uncertainty associated with total bycatch estimates for rarely-encountered species varies substantially with observer coverage levels: informing minimum requirements for statutory logbook validation. *Marine Policy*, 95, 273-282; and see Curtis, K. A., & Carretta, J. V. (2020). *ObsCovgTools: Assessing observer coverage needed to document and estimate rare event bycatch*. *Fisheries Research*, 225, 105493).

⁹Northridge, S., Kingston, A. and Coram, A. (2020) Preliminary estimates of seabird bycatch by UK vessels in UK and adjacent waters. Report prepared for the Department for Environment Food and Rural Affairs (Project Code ME6024)

¹⁰Field, R., Crawford, R., Enever, R., Linkowski, T., Martin, G., Morkunas, J., Morkune, R., Rouxel, Y and Opiel, S. (2019) High contrast panels and lights do not reduce bird bycatch in Baltic Sea gillnet fisheries. *Global Ecology and Conservation*, 18, e00602.

¹¹ [REDACTED] / Accessed 29 March 2022; and Rouxel et al, in prep

guarantee a reduction of seabird bycatch levels is the removal of gillnets in space/time overlapping with seabirds.

Bycatch of guillemot, razorbill and gannet

- 3.8. Studies such as Northridge et al. (2020)¹² demonstrate that to date, the level of observer coverage provided by the Bycatch Monitoring Programme is not representative and is therefore insufficient to accurately or precisely define the scale of the problem in the UK. While there is clearly a seabird bycatch problem in need of urgent action in UK waters, there is insufficient evidence to suggest that the Applicant can confidently and demonstrably reduce seabird bycatch as a viable compensatory measure for the species concerned, in the areas and gear types proposed, as the overall picture is fragmented and poorly understood. For some species, there are certainly fisheries and areas where there is an indication of a bycatch problem and a need for fisheries managers to address this, but we lack data on the birds themselves (e.g. the linkages between birds from particular breeding populations and where they might be caught in fisheries as they forage; substantially less so in the non-breeding period) as well as from fisheries, with less than 1% of fishing effort observed by a bycatch observer and minimal information on the levels of gillnet fishing at the necessary scale. The overall effect of this, combined with a lack of established, rigorously tested best practice mitigation and the means to deploy it at the relevant scale, is that determining a specific number of birds that can be ‘saved’ from gillnet bycatch is essentially not possible at the time of writing; even less so when this is broken down into individual species.
- 3.9. While there has been a series of research that has helped improve understanding of seabird bycatch risk in UK waters, it is clear however that more information is needed to understand the true scale and nature of the problem. Studies that have improved understanding of seabird bycatch in the UK include:
- Bradbury et al. (2017)¹³ – a risk assessment of seabird bycatch in UK waters to understand the relative risk to UK seabird species to bycatch from fisheries operations in UK waters.
 - Northridge et al. (2020) – preliminary estimates of seabird bycatch by UK vessels in UK and adjacent waters to quantify annual mortality from recorded seabird bycatch observations across three broad gear types. This study provided the first UK-wide estimates of seabird bycatch mortality from UK-registered vessels in UK waters, highlighting the species impacted, fisheries and areas in need of action.
 - Miles et al. (2020)¹⁴ – a preliminary assessment of seabird population responses to potential bycatch mitigation in the UK-registered fishing fleet to understand potential population size increases for species subject to bycatch. This study estimated the potential population increases over a 25-year period if bycatch was entirely removed and estimated that there could be UK-wide increases of ~1% (upper estimate >1.5%) for guillemots, 0.2%

¹² Northridge, S., Kingston, A. and Coram, A. (2020) Preliminary estimates of seabird bycatch by UK vessels in UK and adjacent waters. Report prepared for the Department for Environment Food and Rural Affairs (Project Code ME6024)

¹³ Bradbury, G., Shackshaft, M., Scott-Hayward, L., Rextad, E., Miller, D., & Edwards, D. (2017). Risk assessment of seabird bycatch in UK waters. Report to Defra: MB0126.

¹⁴ Miles, J., Parsons, M. and O’Brien, S. 2020. Preliminary assessment of seabird population response to potential bycatch mitigation in the UK registered fishing fleet. Report to DEFRA: ME6024.

(upper estimate ~2% in northern waters) for razorbill and 0.7% (upper estimate 2%) for gannets.

- Cleasby et al. (2022)¹⁵ – an assessment of bycatch risk from gillnet fisheries for three species of diving seabird (shag, guillemot and razorbill) in the UK which identified potential hotspots where bycatch risk was elevated due to overlap in seabird dive activity and fishing effort. Bycatch risk hotspots for all 3 species were identified along the north-east coast of England. Risk hotspots were also identified along the Pembrokeshire coast for both auk species and along the Cornish coast for shag. Lack of fishing effort data for smaller vessels made it difficult to assess seabird-fishery overlap in Scottish waters. This paper highlighted potential areas to focus efforts for monitoring and mitigation trials, as well as the need for better fishing effort data (especially from static nets, small scale and non-UK vessels) and provided insight into seabird diving behaviour that could help improve the design of mitigation measures.
- Evans et al. (2021)¹⁶ – a risk assessment of bycatch of protected species in fishing activities with a focus on cetaceans and seabirds that occurred regularly in the North-Eastern region between southern Scandinavia and the Iberian Peninsula that are vulnerable to bycatch. This study aimed to improve knowledge on protected species bycatch risk and identify potential areas and times to focus monitoring programmes and conservation measures to address bycatch.
- Anderson et al. (2021)¹⁷ – a review of the global evidence base on seabird bycatch mitigation, the potential for UK application and further research. This study reviews and synthesises bycatch mitigation measures from across the globe and their applicability to UK fisheries while outlining the current context of seabird bycatch risk in the UK and priority areas for monitoring and mitigation trials (the floated demersal longline fleet in the north-west of Scotland and off the Shetland Islands and for the <10 metre static net fleet in the southern coast of Devon and Cornwall and north-east coast of England). It highlights that, ***‘Mitigation measures for static net fleets are in a much earlier stage of development worldwide, and there are no ‘off the shelf’ methods that can be recommended for widespread roll-out in UK fleets. Therefore, targeted experimental trials are needed for some of the more promising mitigation measures that have been trialled elsewhere, in addition to refinement of techniques already used in the UK in one small-scale fishery’.***

This study also recommends increased monitoring given the limited observer data on which current seabird bycatch estimates have been determined.

¹⁵ Cleasby, I.R., Wilson, L.J., Crawford, R., Owen, E., Rouxel, Y., Bolton, M., (2022) Assessing bycatch risk from gillnet fisheries for three species of diving seabird in the UK. *Mar Ecol Prog Ser* 684:157-179

¹⁶ Evans, P.G.H., Carrington, C.A., and Waggitt, J.J. (2021) Risk Mapping of Bycatch of Protected Species in Fishing Activities. Sea Watch Foundation & Bangor University, UK. European Commission Contract No. 09029901/2021/844548/ENV.D.3. 212 pages.

¹⁷ Anderson, O., Small, C., Croxall, J., Dunn, E., Sullivan, B., Yates, O., Black, A., (2011). Global seabird bycatch in longline fisheries.

Guillemot

- 3.10. Diving birds like guillemots, which can dive hundreds of feet for fish, do not see nets as they hunt underwater, and drown when nets tangle their bodies. Northridge et al. (2020)¹⁸ estimated that based on records obtained through the Bycatch Monitoring Programme, UK-registered vessels could kill between 1800-3300 guillemots per annum, mainly from static net fisheries. Guillemot bycatch has also been observed in mid-water trawls, where they were estimated to have made up 85% of the recorded bycatch in this gear through BMP observations.

Razorbill

- 3.11. Northridge et al. (2020) estimated that based on records obtained through the Bycatch Monitoring Programme, approximately 100-200 razorbills could be caught and killed each year in coastal static net fisheries and English Channel midwater trawl fisheries.

Gannet

- 3.12. Northridge et al. (2020) estimated that based on records obtained through the Bycatch Monitoring Programme, 'a few hundred' gannets could be killed largely in offshore static net and longline fisheries.

¹⁸ Northridge, S., Kingston, A. and Coram, A. (2020) Preliminary estimates of seabird bycatch by UK vessels in UK and adjacent waters. Report prepared for the Department for Environment Food and Rural Affairs (Project Code ME6024)

4. Summary of pre-requisites to assess a bycatch reduction proposal

- 4.1. To determine if the Applicant's proposed bycatch mitigation measures are feasible and effective, we consider it helpful to assess their proposals against the ACAP Best Practice Seabird Bycatch Mitigation Criteria and Definition¹⁹, which are outlined below. ACAP is a formal agreement under the Convention on the Conservation of Migratory Species of Wild Animals (known as CMS), to which the UK is one of 13 global Parties. The Seabird Bycatch Working Group of ACAP comprises representatives from these Parties, alongside invited experts with technical expertise. As such, it is the most widely recognised and credible forum for assessing and determining best practice seabird bycatch mitigation techniques.
- i Individual fishing technologies and techniques should be selected from those shown by experimental research to significantly reduce the rate of seabird incidental mortality²⁰ to the lowest achievable levels. Experimental research yields definitive results when performance of candidate mitigation technologies is compared to a control (no deterrent), or to status quo in the fishery. When testing relative performance of mitigation approaches, analysis of fishery observer data can be plagued with a myriad of confounding factors. Where a significant relationship is demonstrated between seabird behaviour and seabird mortality in a particular system or seabird assemblage, significant reductions in seabird behaviours, such as the rate of seabirds attacking baited hooks, can serve as a proxy for reduced seabird mortality. Ideally, where simultaneous use of fishing technologies and practices is recommended as best practice, research should demonstrate significantly improved performance of the combined measures.
 - ii Fishing technologies and techniques, or a combination thereof, should have clear and proven specifications and minimum performance standards for their deployment and use. Examples would include: specific bird scaring line designs (lengths, streamer length and materials; etc.), number and deployment specifications (such as aerial extent and timing of deployment); night fishing defined by the time between the end of nautical dusk and start of nautical dawn; and, line weighting configurations specifying mass and placement of weights or weighted sections.
 - iii Fishing technologies and techniques should be demonstrated to be practical, cost effective and widely available. Commercial fishing operators are likely to select for seabird bycatch reduction measures and devices that meet these criteria including practical aspects concerning safe fishing practices at sea.
 - iv Fishing technologies and techniques should, to the extent practicable, maintain catch rates of target species. This approach should increase the likelihood of acceptance and compliance by fishers.
 - v Fishing technologies and techniques should, to the extent practicable, not increase the bycatch of other taxa. For example, measures that increase the likelihood of catching other protected species such as sea turtles, sharks and marine mammals, should not be considered best practice (or only so in exceptional circumstances).

¹⁹ ACAP (2021) ACAP Review of mitigation measures and Best Practice Advice for Reducing the Impact of Pelagic Longline Fisheries on Seabirds. In: ACAP - Twelfth Meeting of the Advisory Committee. Online

²⁰ This may be determined by either a direct reduction in seabird mortality or by reduction in seabird attack rates, as a proxy

- vi Minimum performance standards and methods of ensuring compliance should be provided for fishing technologies and techniques, and clearly specified in fishery regulations. Relatively simple methods to check compliance should include, but not be limited to, port inspections of branch lines to determine compliance with branch line weighting, determination of the presence of davits (tori poles) to support bird scaring lines, and inspections of bird scaring lines for conformance with design requirements. Compliance monitoring and reporting should be a high priority for enforcement authorities.

5. Assessment of Hornsea 4 bycatch reduction proposals

Introduction

- 5.1. This section sets out the RSPB's initial assessment of the proposed bycatch reduction compensation measure for gannet, guillemot and razorbill.
- 5.2. The RSPB supports Natural England's statement on their overall confidence in the proposed bycatch mitigation as a compensation measure (page 6, Appendix C, RR-029):

"Whilst delivering compensation via bycatch reduction is theoretically viable, there is currently no proven method to reduce bycatch of auks and hence deliver compensation. The measure relies on a single trial of a single method which could fail. We also cannot make any assessment of the scale of measure that might be achievable without an implementation method with quantified success rates, and a quantified assessment of bycatch levels at the target fishery. Whilst there seems more likely to be successful bycatch reduction measures available for gannet, limited information is presented on the proposed approach to this measure."

- 5.3. The Applicant has identified bycatch reduction as a primary compensation measure for guillemot, razorbill and gannet.
- 5.4. The RSPB's current view on bycatch reduction as compensation for razorbill and guillemot has been expressed in stakeholder discussions, consultation responses, and examination responses for other proposed offshore windfarms²¹.
- 5.5. The RSPB does not accept that bycatch reduction can be described as a compensation measure, primary or otherwise, and considers this proposal is experimental research. We have no confidence that the bycatch reduction measures are viable or effective. The key reasons for this are listed below (and more details provided in the following sections):
- Proposed measures are experimental research and unproven
 - Proposed bycatch reduction measures lack best practice
 - Lack of data on scale of the bycatch problem in the UK, and species specific bycatch rates/risk
 - Uncertainty of update and implementation: substantial challenges with uptake (from fisheries) and the associated challenge of monitoring compliance with this in the long-term, especially in the absence of any legal obligations or institutional management support
 - Could the measure protect network coherence?
 - Proven bycatch mitigation should be regulated by fisheries authorities

²¹ East Anglia One North and East Anglia Two offshore wind farms: RSPB REP9-071: <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010077/EN010077-004789-DL9%20-%20RSPB.pdf> and Rep-11-126 <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010077/EN010077-005277-DL11%20-%20Royal%20Society%20for%20the%20Protection%20of%20Birds.pdf>. Accessed 29 March 2022

Proposed compensation is experimental research

- 5.6. The current measures focus on conducting research trials (through a bycatch technology selection phase) to “gather evidence” on the efficacy of each suggested trial bycatch mitigation method. While the RSPB welcomes the trial per se, the fact remains that these measures are based on experimental research, and unproven, which cannot guarantee compensation for the impacts on seabirds.
- 5.7. For the initial selection phase of the bycatch reduction trials, the Applicant is focusing on Looming Eye Buoys (LEB), a visual deterrent. The research trials are due to finish in 2023, therefore we will only know whether LEB's are successful after the examination and likely after the date by which the Secretary of State is required to take a decision on whether or not to consent the DCO. Until then we cannot have any certainty that this will be an effective compensation measure. Therefore, it will be impossible for the Secretary of State to take a decision that can have confidence this proposed measure would be secured and able to protect the coherence of the National Site Network for the affected species.
- 5.8. As referenced in Section 4, point i. of the ACAP Best Practice Seabird Bycatch Mitigation Criteria states that,

“Individual fishing technologies and techniques should be selected from those shown by experimental research to significantly reduce the rate of seabird incidental mortality²² to the lowest achievable levels.”

The current proposal is experimental LEB research that, at the time of writing, has not been proven to ‘significantly reduce the rate of seabird incidental mortality’. As a result, we cannot accept this as a proven form of bycatch reduction. When results from the Applicant's experiments are ready, it will be critical that the data, results, and analysis can be scrutinised either through peer review or an equivalent process of independent expert scrutiny (as would be the process at ACAP if a new measure was put forward to add to best practice).

- 5.9. The RSPB supports Natural England’s statement on technical feasibility (page 6, Appendix C, RR-029):

“If the ‘looming eye buoy’ trial is unsuccessful there will be no mechanism to deliver this measure. Furthermore, it is unlikely that a single trial will provide sufficient evidence of effectiveness and/or scale”

- 5.10. If LEB deterrents are unsuccessful, it is our understanding that the Applicant will consider other bycatch reduction techniques, such as net illumination, visual net modifications. The research on these alternatives will also take place after the initial trials (and the examination). Therefore we, and more critically, the Examining Authority and Secretary of State for BEIS, are unable to assess whether they will be effective. Recent research from Field et al, 2019²³ on multi-year trials of these methods (net illumination, visual net

²² This may be determined by either a direct reduction in seabird mortality or by reduction in seabird attack rates, as a proxy

²³Field, R., Crawford, R., Enever, R., Linkowski, T., Martin, G., Morkunas, J., Morkune, R., Rouxel, Y and Opper, S. (2019) High contrast panels and lights do not reduce bird bycatch in Baltic Sea gillnet fisheries. Global Ecology and Conservation, 18, e00602.

modifications) suggests they are unlikely to be effective for the affected species in this marine system.

- 5.11. We agree with Natural England's statement (on page 25, Appendix C, RR-029) regarding paragraph 1.2.1.1 (page 13, point 5) of Volume B2, Annex 8.1: Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence (APP-194),

"In previous engagement with the Applicant, Fishtek, Birdlife and RSPB on bycatch trials (28 July 2021), net illumination, net visibility and acoustic deterrent were all dismissed as unsuitable. We consider that this advice has been taken on board by the Applicant as only Looming Eyes Buoy (LEB) has been taken forward for trial, but we note that the other methods have been retained in all documents. We consider it unlikely that these offer a fall-back option should the LEB trial fail."

- 5.12. We also agree with Natural England's statement (page 26, Appendix C, RR-029) regarding paragraph 2.1.1.3 of Volume B2, Annex 8.1: Compensation measures for FFC SPA: Bycatch Reduction: Roadmap (page 5, APP-195),

"It is noted that a bycatch "technology selection phase" is planned for 2021-23. However, it is our understanding that this phase is in fact the trialling of a single technique (LEB), and possibly another above water deterrent (predator kites). If this technology is not taken forward, there is currently insufficient evidence to simply select another technology (e.g., net illumination or modification, acoustic deterrents). Therefore, another trial phase would be required the aims objectives, risks, and possible outcomes of the 'selection phase', including implications for implementation timelines, should be presented."

- 5.13. The RSPB fully agrees with paragraph 10.2.2.1 of Volume B2, Annex 8.1: Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence (page 64 APP-194),

"The scale of successfulness is varied depending on several factors, including, but not limited to: bycatch reduction technique, species, and location, with each reduction technique having varied success rates. It must be noted that although many bycatch-avoidance measures have been developed and tested successfully in controlled experiments, successful experiments may not translate to effective bycatch reduction in commercial fisheries as conditions differ (Cox et al., 2007). It is therefore important that experimental study results are taken with caution."

We would recommend this is fully considered (alongside the ACAP best practice guidance) before continuing.

- 5.14. The RSPB welcomes the Applicant's work on this limited research trial and would request publication of the detailed methodology and results for review by interested parties at a minimum – preferably in the peer-reviewed literature – in line with scientific best practice.
- 5.15. The next update from the Applicant should set the detailed methodology and proposals for data analysis so that they can be scrutinised prior to publication of the initial trial results.

Lack of best practice technologies

- 5.16. The Applicant states (page 5, paragraph 2.1.1.2, Volume B2, Annex 8.2: Compensation measures for FFC SPA: Bycatch Reduction: Roadmap, APP-195),
- "Defra and Cefas' joint Clean Catch initiative recommends bird bycatch reduction measures".*
- However, the Clean Catch website²⁴ has the following disclaimer specifically stating that they are not 'endorsing or recommending' specific mitigation measures:
- "The UK Bycatch Mitigation Hub intends to be a source of information only, and should be used as a 'starting point' for further investigation. Clean Catch UK & the UK Government do not endorse or recommend all of the mitigation measures listed."*
- 5.17. The Applicant is proposing gillnet bycatch reduction measure. As identified above in Section 3, outside of the removal of gillnets - either in space or time - or wholesale change of gear to something that birds do not get caught in - there are currently not any recommended technical measures for gillnet bycatch mitigation. While continued effort to identify the scale of, and potential solutions to, bycatch in static net fisheries is imperative, based on current literature, mitigation measures for static net fisheries cannot reasonably guarantee reductions in seabird bycatch levels at this stage, and therefore cannot be relied upon as a compensation measure.
- 5.18. Although the Applicant highlights the absence of technical best practice bycatch mitigation measure for gillnets in paragraph 10.1.1.1 of Volume B2, Annex 8.1: Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence (page 63, APP-194), there is insufficient reference to this throughout the remainder of their research. Indeed, they omit the findings of Field et al (2019)²⁵ that there are no measures we can be confident will work across gillnet fisheries and species. We are concerned that they are overly reliant on unproven measures.
- 5.19. The Applicant states (page 79, point 8, paragraph 13.1.1.1., Volume B2, Annex 8.1: Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence, APP-194),
- "Bycatch reduction techniques have been identified for longline, static gillnet, and trawl fisheries with positive results from species with similar foraging ecology to gannet. Techniques used to deter individuals from warp lines (trawls) or reduce access to the hooks (longlines) reduce access to all seabirds and therefore would be a successful bycatch reduction technique for gannet"*
- 5.20. Longline is the only gear that it can be clearly stated there are effective techniques. As stated above, for gillnets there is a lack of information around best practice across species so we cannot determine if this will be effective. For trawl fisheries net entanglement is notoriously hard to mitigate therefore, the conclusion that techniques to prevent warp

²⁴ [REDACTED] Accessed 29 March 2022

²⁵Field, R., Crawford, R., Enever, R., Linkowski, T., Martin, G., Morkunas, J., Morkune, R., Rouxel, Y and Opiel, S. (2019) High contrast panels and lights do not reduce bird bycatch in Baltic Sea gillnet fisheries. *Global Ecology and Conservation*, 18, e00602.

collisions (when birds are struck by warp cables pulling the trawl net) in trawl fisheries will help reduce gannet captures in nets is not appropriate.

- 5.21. As referenced in Section 4, point ii. the ACAP Best Practice Seabird Bycatch Mitigation Criteria states that,

“Fishing technologies and techniques, or a combination thereof, should have clear and proven specifications and minimum performance standards for their deployment and use.”

Many of these specifications and standards are developed through continual testing, including of technical measures like the LEB. The ongoing trials represent the first commercial trials of the LEB. As a result, the specifics of deployment are still being figured out including: optimal height above sea level, weight, material and frequency of position along the net.

- 5.22. We note that all established best practice measures - line weighting, bird scaring lines, night setting and hook shielding devices - have been supported by publications in the peer-reviewed literature, as well as ACAP's own expert review process within the Seabird Bycatch Working Group. Before any measures can be deemed as acceptable bycatch mitigation the measure must be proven through a robust trial, with all data made available for peer-review.
- 5.23. The *outline of key success criteria* within Volume B2, Annex 8.1: Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence (page 63, paragraph 10.2.1, APP-194), should be updated to reflect ACAP's seabird-specific criteria (see Section 4 of this document).

Lack of data

- 5.24. The general lack of information on the nature, scale and location of bycatch affecting gannet, guillemots and razorbills in UK waters means that there can be no confidence that bycatch reduction proposals will be of any benefit to these species and therefore provide compensation with a reasonable guarantee of success. There are also specific areas in Volume B2, Annex 8.1: Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence (APP-194) where data is missing or inaccurate. These are detailed below:

Level of compensation required

- 5.25. As identified in Section 4, Offshore Ornithology, of our main Written Representation we echo that highlighted by Natural England (page 6, Appendix C, RR-029):

“Due to concerns with the baseline characterization... it is not currently possible to agree impact levels and therefore compensation.”

Gannet data

- 5.26. There is very little information on where gannet bycatch is actually taking place and by what means. The Applicant states (Page 79, paragraph 13.1.1.3, Volume B2, Annex 8.1: Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence, APP-194),

“The bycatch reduction techniques suitable for gannet have previously been trialled and tested, therefore, there is confidence in the success of bycatch reduction as a compensation

measure for gannet. Further evaluations will determine the location for technique deployment.”

The Applicant has not provided any information on what precise measures are being proposed for gannet and how they will be implemented. As far as we are aware, no trial work is underway in respect of this species (c.f. guillemot and razorbill). We understand that the techniques referenced above have not been proven to specifically reduce bycatch of gannet. As a result, we cannot have confidence that any bycatch mitigation measures would be effective for gannet.

Seasonal data

- 5.27. The Applicant is trialing bycatch reduction measures in winter only. We would request that data is collected across different seasons to provide a more robust picture of bycatch and fishing effort in the UK. Indeed, in paragraph 7.3.2 of Volume B2, Annex 8.1: Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence, (page 49, APP-194), the highest total bycatch risk for guillemot is identified in April and October so data during the summer is relevant.

Fishing effort

- 5.28. To calculate fishing effort (Equation 1, page 27, paragraph 6.2.1.2, Volume B2, Annex 8.1: Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence, APP-194) the Applicant multiplies number of days at sea by average hauls per day. It is unclear whether number of days at sea are calculated per vessel or per ICES square, as different breakdowns are available.
- 5.29. Additionally, using number of hauls per day can be problematic as the size and length of time that a static gill net is deployed for varies. As a result, the values for fishing effort are likely to contain inaccuracies.
- 5.30. The proposed bycatch reduction measures are to compensate for the impacts on birds including those from the Flamborough and Filey Coast SPA. To calculate the fishing effort around this SPA the Applicant used MMO data which did not detect high levels of static net fishing (< 10 m vessels) in this area. However, other data sources do^{26,27}. These studies use different sources of information on fishing effort and are not split by vessel length at < 10m or > 10m but were designed to include smaller vessels (< 15m). We recognize that this data is slightly older however, given the overlaps with likely SPA foraging ranges here, this data should be considered.

Bycatch estimates

- 5.31. The Applicant estimates bycatch by multiplying fishing effort by average bycatch per 1000 hauls. While the fishing effort estimated here will vary in space (ICES square) and time (year,

²⁶ Breen P, Vanstaen K, Clark RW (2015) Mapping inshore fishing activity using aerial, land, and vessel-based sighting information. ICES J Mar Sci 72:467-479

²⁷ Enever R, Lewin S, Reese A, Hooper T (2017) Mapping fishing effort: Combining fishermen’s knowledge with satellite monitoring data in English waters. Fish Res 189:67-76

season etc.), only one value of bycatch rate from Northridge et al. (2020) was used for each species/ vessel size combination.

- 5.32. However, bycatch estimates should incorporate seabird density. Seabird density varies a lot in space and time and will, in addition to fishing effort, also impact bycatch. Indeed, bycatch can still be high in areas of lower fishing efforts if there is a high density of at-risk species, for example during breeding seasons or in areas close to large colonies where seabird densities are high. Conversely, bycatch can be low in areas of high fishing effort if there are low numbers of birds, or if their behaviour is such that they do not encounter the nets. As a result, bycatch risk reduction should not necessarily just target areas with high fishing effort. Because the Applicant has omitted seabird densities from the bycatch estimates we believe the seasonal variation / temporal variation in these bycatch estimates will largely reflect patterns in fishing effort, not changes in bycatch.
- 5.33. Whilst the Applicant later highlights the relevance of seabird density (Section 7, Volume B2, Annex 8.1: Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence, APP-194) we believe it is misleading to refer to these values as bycatch estimates given they do not take account of crucial factors like seabird density. Instead, we believe these estimates should be referred to as fishing effort itself.
- 5.34. The estimates also do not account for the type or depth of gillnets set. This is an important factor in estimating bycatch because we know the depths that birds can dive. So, comparing this with net depth would provide a better assessment of risk.
- 5.35. The bycatch estimates rely on average haul and bycatch rate data from Northridge et al. (2020)²⁸. Generally, across the UK, the bycatch figures from Northridge et al. (2020) are likely underestimates due to poor monitoring, especially on smaller <10 m boats, which are less able to take observers and do not carry Vessel Monitoring Systems (VMS).
- 5.36. The RSPB believes that the estimates of bycatch produced here may have two sources of uncertainty. They combine the uncertainty associated with estimates of bycatch rate from Northridge with the uncertainty that is present in the fishing effort data, given they are combination of both.

Bycatch risk

- 5.37. The Applicant highlights that guillemot are more vulnerable to bycatch than razorbill due to being present in higher numbers (paragraph 7.3.2.1, page 49, Volume B2, Annex 8.1: Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence, APP-194). However, it is important to consider that behaviour might also impact vulnerability to bycatch. For example, guillemots tend to dive deeper, exploring more of the water column and maybe more likely to come in contact with a net, resulting in increased risk. A more detailed understanding of the impact of behaviour on bycatch risk is needed.
- 5.38. All values should present the full range of estimates next to individual figures to indicate uncertainty. Including the error ranges and exactly how data was broken down (spatially and

²⁸ Northridge, S., Kingston, A. and Coram, A. (2020) Preliminary estimates of seabird bycatch by UK vessels in UK and adjacent waters. Report prepared for the Department for Environment Food and Rural Affairs (Project Code ME6024)

temporally) would provide a more robust insight into fishing effort, bycatch estimates and bycatch risk.

- 5.39. We will review any more detailed information provided by the Applicant and await the outcome of the trial research.

Incorrect conclusions drawn from previous research

- 5.40. We note the Applicant has drawn incorrect conclusions from several research papers in Table 13 (page 67, Volume B2, Annex 8.1: Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence, APP-194) which omit some important points. Notably results that were not statistically significant and/or with mixed results depending on the species, mixing up reduction in bird presence with reduction in bird bycatch, assuming that experiments in controlled environments (e.g. water tanks) have the same conclusions in real fishing conditions. We have noted these inaccuracies in Table 1 below.

Table 1. Inaccurate conclusions drawn by the Applicant in Table 13 Volume B2, Annex 8.1: Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence (APP-194).

Study	Incorrect interpretation/ error in Ecological Evidence
NET ILLUMINATION: LEDs or UV	
Bielli et al., 2020 ²⁹	In this study, the statistical model used could not find statistically significant reduction in bird bycatch.
Field et al., 2019 ³⁰	In this study, flashing white lights actually increased bycatch for Long tailed ducks.
VISUAL NET MODIFICATIONS: HIGH VISIBILITY NETTING	
Melvin et al., 1999 ³¹	The Applicant states that this method did not affect the target catch when it did.
Quayle, 2015 ³²	This study used J shaped netting (a mix between a fish trap and gillnet). Additionally, no statistical analysis was conducted and there was no paired-trailed setting (so no comparison was possible). This measure was in coordination with other measures as well, notably net attendance, as a result reduction from using high visibility netting by itself has not been proven in Filey bay.

²⁹ Bielli, A., Alfaro-Shigueto, J., Doherty, P.D., Godley, B.J., Ortiz, C., Pasara, A., Wang, J.H. and Mangel, J.C. 2020. An illuminating idea to reduce bycatch in the Peruvian small-scale gillnet fishery. *Biological Conservation*, 241, e108277.

³⁰Field, R., Crawford, R., Enever, R., Linkowski, T., Martin, G., Morkunas, J., Morkune, R., Rouxel, Y and Opper, S. (2019) High contrast panels and lights do not reduce bird bycatch in Baltic Sea gillnet fisheries. *Global Ecology and Conservation*, 18, e00602.

³¹ Melvin, E.F., Parrish, J.K. and Conquest, L.L. 1999. Novel tools to reduce seabird bycatch in coastal gillnet fisheries. *Conservation Biology*, 13, 1386-1397.

³² Quayle, H. and Marine Conservation Officer. 2015. Filey Bay: Safe Seas for Seabirds December 2015.

Study	Incorrect interpretation/ error in Ecological Evidence
Hanamseth et al., 2017 ³³	Trials were conducted in a controlled environment (water tanks). Results found that there were less interactions between birds and the frame with orange netting, but due to the controlled conditions there is no certainty that this will result in less bycatch in real conditions and remains unproven.
ABOVE WATER METHODS: LOOMING EYES BUOY	
Rouxel et al., 2021 ³⁴	This study showed reduction in long tailed ducks that were present in a 50m radius. The lead author Yann Rouxel, RSPB Bycatch Project Manager confirmed that, since no nets were involved, there was no bycatch component in those trials. Based on this study the Applicant states, <i>“there is confidence that the LEB will be successful at deterring guillemot and razorbill and therefore reduce the number of individuals bycaught.”</i> Confidence is not the right term as no trials to date have proven the device to be effective in an active fishery (with proven bycatch rate reduction). The only proven results so far are about reduction in presence of one single species (Long tailed ducks), and not the mentioned guillemots and razorbills which have very different foraging behaviour.
Numerous	The Applicant states (paragraph 10.3.1.14, page 74, Volume B2, Annex 8.1: Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence, APP-194) that some studies reduced seabird bycatch by over 80%. This is slightly misleading as this was only proven for one species, not seabirds as a whole.

Uncertainty of uptake and implementation

- 5.41. It is not possible to assess the proposed measures or state whether there will be any benefits, as the detail of the exact bycatch measures (evidence, scale, methods, time, locations etc.) will only be provided after the bycatch technology selection phase (2021-23) which concludes after the current decision date by the Secretary of State. This critical information and analysis should be presented to the examination for scrutiny by the Examining Authority and Interested Parties before any consent is given to offshore windfarms.

³³ Hanamseth, R., Baker, G.B., Sherwen, S., Hindell, M. and Lea, M.A. 2017. Assessing the importance of net colour as a seabird bycatch mitigation measure in gillnet fishing. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 28, 175-181

³⁴ Rouxel, Y., Crawford, R., Cleasby, I.R., Kibel, P., Owen, E., Volke, V., Schnell, A.K. and Oppel, S. 2021. Buoys with looming eyes deter seaducks and could potentially reduce seabird bycatch in gillnets. *Royal Society Open Science*, 8, 210225.

Uptake by fisheries

- 5.42. Underlying the proposal is an assumption that it can solve significant challenges in a short timeframe. Assuming a link is proven to the target species, these challenges include the identification of suitable mitigation options appropriate to specific fisheries and addressing the long-term social, economic and scientific research necessary to persuade individual fishers and fisheries to adopt any such measures for a period beyond the operational lifetime of the wind farm i.e. greater than 35 years (see section 5.26 of our main Written representation).
- 5.43. As referenced in Section 4, point iii and iv of the ACAP Best Practice Seabird Bycatch Mitigation Criteria state that,
- “Fishing technologies and techniques should be demonstrated to be practical, cost effective and widely available”, and “Fishing technologies and techniques should, to the extent practicable, maintain catch rates of target species. This approach should increase the likelihood of acceptance and compliance by fishers.”*
- 5.44. Without details of the exact measures that will be taken forward we cannot have any confidence they will be practical, cost effective or widely available, or maintain catch rates of target (fish) species. We therefore cannot be confident they will be taken up by fisheries.
- 5.45. There is not enough certainty regarding the participants (fishermen) who would be involved in carrying out the compensation measures. We note that acquiring uptake for a trial is significantly different to confirming uptake fully for a period of greater than 35 years and the complications around wider social and regulatory aspects that come into play when a problem is identified. The Applicant has not outlined alternative compensation options if future policy changes are implemented such as fishing restrictions or regulations to reduce bycatch.
- 5.46. Ensuring uptake by target fisheries needs explicit consideration with regard to the individuals involved. The greater than 35 year lifespan means there will likely be new entrants and existing fishers retiring. The Applicant has not detailed how they will ensure implementation and what will happen if fishers are not prepared to take up mitigation measures. Such detail is critical to a proper understanding and evaluation of the measure and cannot be left until after the examination.
- 5.47. It should also be recognised that fisheries authorities have an existing obligation to minimise and where possible eliminate sensitive species bycatch enshrined *inter alia* within the UK Fisheries Act therefore, it is unclear how the Applicant’s bycatch compensation proposals would interplay with regulators’ statutory duties.
- 5.48. The Applicant has acknowledged that uptake may need to be incentivised paragraph 2.1.1.3 of Volume B2, Annex 8.1: Compensation measures for FFC SPA: Bycatch Reduction: Roadmap (page 5, APP-195). The likely extent of incentives to achieve uptake will need to be explicitly studied as part of the research proposed to ensure it is feasible to implement over the proposed lifetime of the windfarm. Moreover, it is imperative that the Applicant details what safeguards would be put in place to ensure 'incentivisation' throughout the greater than 35-year timescale and what will happen after this time.

- 5.49. However it is achieved, uptake needs to be confirmed and guaranteed before consent.
- 5.50. We also note that the Applicant draws equivalence between an industrial Namibian fishery, sensitised by years of collaboration with an NGO partner and subject to high levels of observer coverage and specific fisheries bycatch regulations, with bycatch mitigation in a small UK gillnet fleet where none of these things represent the current situation. Given the vastly different parameters between these situations we consider the Applicant is overly reliant on this example, which we do not consider is particularly pertinent here.

Lack of detail on monitoring

- 5.51. Whilst the Applicant states that monitoring of the bycatch management measures will be undertaken, clarity is needed on what exactly will be monitored (i.e. bycatch rate and/or the mitigation measure use) as this may influence what monitoring methods are used.
- 5.52. The RSPB is concerned about the lack of detail on how the Applicant will ensure compliance and monitoring of bycatch mitigation measures is implemented for a period greater than 35 years.
- 5.53. As referenced in Section 4, point iv of the ACAP Best Practice Seabird Bycatch Mitigation Criteria states that:
- “Minimum performance standards and methods of ensuring compliance should be provided for fishing technologies and techniques, and clearly specified in fishery regulations... Compliance monitoring and reporting should be a high priority for enforcement authorities.”*
- 5.54. The RSPB fully supports improved bycatch monitoring but are concerned about how this will be done in reality, in the absence of the necessary detail or recognition of the wider regulatory frameworks for sensitive species bycatch mitigation and monitoring. If the proposed methods are found to be effective, without a legal requirement, the monitoring burden on the Applicant will be high. It will require them to ensure compliance at a sufficient level to reduce seabird bycatch by the required proportion. The UK fleet currently achieves observer coverage of <1% of annual effort in static nets - which falls well below recommended best-practice levels. Monitoring will require implementation at a wide scale with commensurate monitoring capacity over a prolonged period. The scale and complexity of monitoring bycatch mitigation measures, demonstrates the need for these efforts to be supported by the appropriate policies and priority from management authorities
- 5.55. Any monitoring needs to ensure:
- It will not be an additional burden on industry;
 - Be compatible and work with government mandated reporting and monitoring (which is likely to improve over the timescale for which any compensation will need to be in place);
 - it is clear who is responsible for administering, monitoring and undertaking data analysis to feed into national monitoring and reporting.
- 5.56. The RSPB would recommend avoiding self-reporting in preference of Remote Electronic Monitoring with cameras or at least some form of automated/electronic monitoring.

- 5.57. The Applicant should provide full details of the proposed monitoring approach and how it will be sustained so it can be scrutinised for suitability and sustainability.

Nature of fisheries

- 5.58. The RSPB supports Natural England's statement on the long-term implementation of bycatch mitigation as a compensation measure (page 7, Appendix C RR-029):

"Fisheries are highly dynamic in terms of gear use/ focal species. This could alter bycatch levels, require new fisheries to be identified and/or require new reduction methods to be deployed".

Would the measure protect network coherence?

- 5.59. As set out in section 5 of our main Written Representation, as well as in relation to the predator eradication proposals (see Table 3, RSPB review of Hornsea Four predator eradication compensation proposals, Targeted, Annex C), it is not clear which populations of guillemots and razorbills would benefit, or whether any such benefit would accrue to the UK SPA network for either species. It is likely that any potential benefits would be to the wider biogeographic population, not the Flamborough and Filey Coast SPA. The implications of this, in terms of meeting the legal requirement to protect the coherence of the National Site Network for guillemots and razorbills, need to be properly understood.

Proven bycatch mitigation should be regulated

- 5.60. While we have initial evidence of seabird bycatch rates and risk, there is an urgent need for improved data on seabird bycatch across the UK, particularly in static net fisheries, to understand the true scale of the problem. There is also a concurrent need to invest in identifying potential solutions with industry. In line with ACAP, conservation and scientific best practice, the RSPB believes the focus needs to be on coherent, coordinated and well-funded strategic research and development to improve data collection and plug substantial evidence gaps on seabird bycatch in the UK as a whole i.e. significantly increased monitoring coverage (observer and electronic) over several years across multiple fisheries in order to:

- Improve understanding of seabird bycatch and sea areas of conservation concern in respect of bycatch affecting the target species;
- Target sea areas and fisheries with the aim of carrying out multi-year trials of possible bycatch mitigation options in co-operation with the relevant fisheries;
- Develop, implement and monitor bycatch mitigation options in co-operation with the target fisheries and fisheries authorities; and
- Support work across multiple strands of technical mitigation, management measures and gear replacement.

- 5.61. The RSPB considers that if bycatch mitigation is demonstrated to be effective, it should become a standard feature of fishing operations under key nature conservation and fisheries management legislation (see section 5 of our main Written Representation on the issue of additionality). Proven measures should become a part of the licensing regime or other management tools and be supported with monitoring for compliance (and continuing efficacy). The RSPB believes that bycatch should not be addressed through compensation by

developers, instead it should be led by regulators and fishery managers, in collaboration with industry and other supportive stakeholders. If bycatch mitigation measures are proven, within the 35-year operational period of the Hornsea Four project, these measures could become a requirement of fisheries. At that stage, it is unlikely that they would be considered compensatory.

- 5.62. Notwithstanding the RSPB's position that proven, effective bycatch mitigation should become a standard feature of fishing operations, the RSPB welcomes the Applicant's experimental trial to investigate whether bycatch mitigation measures could be used to reduce bycatch of two of the seabird species affected by the Hornsea Four Project. However, the trial comes at a time when we are waiting for Government action on this issue. There is therefore uncertainty over the role individual wind farm projects can or should play in fishery management, in that when effective bycatch measures are identified, logically these should become standard practice in order to meet the Government's nature conservation and fisheries obligations. This, as Natural England state could raise the question of whether or not there is any additionality (page 7, Appendix C, RR-029).
- 5.63. The RSPB will continue to engage with the Applicant on its experimental trials and look forward to receiving further details on the year 1 trial results, methodologies, data analysis etc at Deadline 5. Any practical proposals to implement bycatch reduction will need to be taken forward in discussion not just with nature conservation bodies, but also with the relevant fishing communities, their organisations, as well as regulators to ensure standards.

6. Overall Conclusions

- 6.1. The RSPB does not accept that bycatch reduction can be described as a compensation measure, primary or otherwise, and considers this proposal is experimental research.
- 6.2. As a result, we have no confidence that the proposed measures are viable, effective or can be delivered.
- 6.3. The Applicant is proposing gillnet bycatch reduction measures, yet there are currently no recommended technical measures for gillnet bycatch mitigation. The measures that are proposed and trialed are unproven and fail to meet the ACAP Best Practice Seabird Bycatch Mitigation Criteria and Definition.
- 6.4. The results of the research trials will only be available once they finish in 2023 i.e. after the examination ends and the current decision date for the DCO. Until then we cannot have any certainty that they will be effective, and certainly not as compensation measures required to meet targeted objectives to protect the overall coherence of the National Site Network for affected seabird species. Before any measures can be deemed acceptable as bycatch mitigation they must be proven through a robust trial, with all data made available for peer-review. Peer-review will be necessary to tackle important questions about whether the initial trials truly demonstrates efficacy or not, and what else may be required (e.g further data collection, robust commercial testing). Whilst we welcome the proposals to conduct some (limited) experimental research, as currently described, the proposal is not fit for purpose as a possible compensation measure.
- 6.5. Bycatch action in the UK is constrained by a lack of data. Although recent studies provide a much needed, broadscale picture of seabird bycatch in the UK, there remains considerable uncertainty around the true nature and scale of bycatch affecting gannets, guillemots and razorbills. As a result, there can be no confidence that bycatch reduction proposals will be of any benefit to these species and therefore provide compensation with a reasonable guarantee of success. Additionally, the Applicant's research (Volume B2, Annex 8.1: Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence, APP-194) contains some significant data gaps that prevents assessment of the efficacy of any proposed measures.
- 6.6. If the proposed bycatch mitigation measures were proven effective per se, based on our considerable experience in this field we are concerned about the achievability of uptake and implementation over a period of more than 35 years. This places a significant burden of proof on the Applicant to demonstrate how such sustained uptake will be achieved. This needs to be confirmed and guaranteed before the end of the examination so that it can be scrutinised by the Examining Authority and interested parties.
- 6.7. We will review any more detailed information provided by the Applicant and await the outcome of the trial research.