Angus Council

From:	Stephanie G Porter
To:	MS Marine Renewables
Subject:	RE: Berwick Bank Offshore Wind Farm - Section 36 and Marine Licence Applications - Consultation - Planning Authorities - Response Requested by 22 April 2023 OUR REF: 22/00861/S36
Date:	13 March 2023 15:48:37
Attachments:	image001.png

Dear Sir/Madam,

ELECTRICITY ACT 1989
MARINE (SCOTLAND) ACT 2010
MARINE AND COASTAL ACCESS ACT 2009

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989, MARINE LICENCES UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE BERWICK BANK OFFSHORE WINDFARM, OFF THE COAST OF EAST LOTHIAN AND THE SCOTTISH BORDERS

I refer to the above consultation request and having reviewed the submitted information in so far as potential impacts on Angus I would advise, Angus Council do not object to the proposal but are concerned that there is only one in depth viewpoint provided from Angus – Montrose (VP2) (around 45km). This is not the closest part of Angus to the development. Seaton Cliffs are commonly used as a key viewpoint and although information has been provided from this location under Viewpoint C, only a basic depiction of potential impacts has not been provided for this location. The distance from the proposal to Angus is similar to that of the development to Lothian, which has 9 viewpoints, and is closer to the proposal than Fife, which has 4 viewpoints.

That being said it is acknowledged that the alignment of the proposed turbines is in rows, approximately NW -SE, which helps to lessen impacts when viewed from Angus and this is a favourable layout approach. The viewpoint from Montrose (Viewpoint 2) is slightly off the proposed turbine row alignment, but views from further south around Arbroath are closer to the alignment and as such the horizontal spread of the turbines appears less visible from this area (Viewpoint C).

It is noted that the height of the proposed turbines to blade tip is 355m, and although this would make the development, even at the proposed distance of around 45km from the Angus shoreline, visible compared with surrounding smaller turbines, impacts are unlikely to be unacceptable. However, should this lead to further increases in turbine heights for those turbines located closer to Angus, the impacts and cumulative impacts could substantially increase and may become unacceptable. The separation between the proposal and surrounding developments makes the differences in turbine heights acceptable.

Angus Council would also advise that the opinion of Historic Environment Scotland is of importance in terms of potential impacts upon Bell Rock Lighthouse which is a category A listed building, as the submitted wirelines appear to show a more wide spread visibility of turbines within views from the lighthouse and this could impact upon the setting of this listed building.

Yours sincerely,

Stephanie Porter | Team Leader – Development Standards | Planning & Sustainable Growth | Angus Council | Angus House | Orchardbank Business Park, Forfar, DD8 1AN | (01307 492378)

Covid: As restrictions ease, the emphasis will continue to be on personal responsibility, good practice and informed judgement. Get the latest information on Coronavirus in Scotland.

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Visit our Facebook page
[Redacted]

Bellrock Offshore Wind Farm Limited

Date: 21-02-23

Your Reference: N/A

The Scottish Government
Marine Scotland
Licensing Operations Team
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

By email only: ms.marinerenewables@gov.scot

Berwick Bank Offshore Wind Farm

Section 36 Application

Representation by Bellrock Offshore Wind Farm Limited

1 INTRODUCTION

1. This representation is submitted by Bellrock Offshore Wind Farm Limited ("**Bellrock**") in relation to the application to the Scottish Ministers by Berwick Bank Wind Farm Limited ("**Berwick Bank**") for consent under s36 of the Electricity Act 1989 and marine licences to construct and operate an offshore wind farm. The proposed Berwick Bank Wind Farm is located in the Outer Firth of Forth.

2. Bellrock is a joint venture comprising Renantis UK Limited and BlueFloat Energy, which secured the development rights to an area of seabed in Scottish Waters via the ScotWind leasing round. The proposed Bellrock offshore wind farm development area is located in the north-east corner of the E1 ScotWind PO in the Central North Sea, approximately 120 km east of Stonehaven and covers approximately 279 km^2 in area. Bellrock will be delivering a 1,200 MW capacity floating offshore wind farm.

3. When determining the application by Berwick Bank, the Scottish Ministers will have to carry out an assessment under the Habitats Regulations[1]. The outcome of this assessment, and any derogation from the Habitats Regulations that is required as a result of it, is relevant to the Bellrock offshore wind farm and other ScotWind projects.

4. This representation expresses concerns that Bellrock has about the lack of information and clarity that is currently available in the application documents for Berwick Bank Wind Farm to allow a proper

[1] The Conservation (Natural Habitats, &c.) Regulations 1994; The Conservation of Habitats and Species Regulations 2017; The Conservation of Offshore Marine Habitats and Species Regulations 2017

understanding of the potential implications which the Berwick Bank Wind Farm could have for Bellrock and future offshore wind development in Scotland.

2 BERWICK BANK'S DEROGATION CASE

5. As part of their application, Berwick Bank submitted a Report to Inform the Appropriate Assessment ("**RIAA**") to provide the information necessary for the Scottish Ministers to undertake a Habitats Regulations Assessment. Two assessment approaches were undertaken in the RIAA – the 'Scoping Approach' and the 'Developer Approach'. For both approaches, Berwick Bank was unable to rule out that the project would have an Adverse Effect on Integrity ("**AEoI**") on European Sites. Where an AEoI cannot be ruled out, a project will need to demonstrate that it meets the requirements for a derogation from the requirements of Habitats Regulations. Berwick Bank has submitted a 'Derogation Case' detailing why they consider consent for Berwick Bank Wind Farm can be granted despite the conclusions in the RIAA.

6. One aspect of a derogation from the Habitats Regulations is that the competent authority must be satisfied that any necessary compensatory measures are taken to ensure that the overall coherence of the national site network is protected. In respect of this application, before they can grant consent, the Scottish Ministers will need to be satisfied that the necessary compensatory measures are in place to offset the environmental impacts of Berwick Bank Wind Farm.

7. Berwick Bank Wind Farm have detailed a number of compensatory measures as part of their Derogation Case which provide a compensation ration of 8.1 to 1. In summary, these are:

   a. Management of the SA4 sandeel fishery – full closure or ecosystem management of SA4 sandeel fishery

   b. Rat eradication and biosecurity measures at Handa island

   c. Dunbar castle wardening role

8. Table 26 of the Derogation Case for Berwick Bank Wind Farm (at page 111) sets out a summary of the balance of overall annual impacts and benefits to the SPA network for both Fisheries Management (point (a) above) and Colony Based Measures (points (b) and (c) above) combined. The table is copied below.

Table 26 Balance of overall annual impacts and benefits to the SPA network for both Fisheries Management and Colony Based Measures combined

Species	SPA population	Adult Mortality (Scoping Approach)	Fisheries Measures Benefit	Colony Measures Benefit	Compensation Surplus	Species Compensation Ratio
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9. The Berwick Bank Wind Farm Derogation Case notes at paragraph 441:

*"[Table 26] shows the **high compensation ratios that the measures will deliver resulting in a significant compensation surplus** and demonstrates that the proposed measures have sufficient substance and scale to offset any impacts from the Proposed Development, deal with any residual uncertainty **and interim losses and - in the case of sandeel measures - provide a mechanism for compensation for impacts of future Scotwind projects**." [emphasis added]*

10. This representation does not provide detailed comment on the measures proposed, the measures required for the Berwick Bank Wind Farm, nor the surplus compensation measures available for other projects, their proposed delivery mechanisms or their feasibility. In addition, the representation does not provide an indication of when the scale of such surplus is likely to be achieved. Instead, this representation is focussed on the broader picture of how these measures might interact with the ScotWind projects, as alluded to in paragraph 441 of the Derogation Case.

3 DEROGATION – APPROACH OF PROJECTS TO DATE AND EMERGING POLICY

11. To date, no offshore wind farm in Scottish waters has been consented with a requirement for a derogation under the Habitats Regulations. There are a number of offshore wind farms within the UK that have been consented with a derogation from the Habitats Regulations[2] and there are other applications that are currently being considered by the Secretary of State, with decisions expected later this year[3]. All of the offshore wind farms that have been consented with a derogation under the Habitats Regulations proposed to deliver compensation through project-led compensation measures (rather than strategic compensation).

12. As is recognised by the proposals being put forward as compensation for Berwick Bank Wind Farm, the ability to deliver the necessary compensation through project-led measures is becoming increasingly difficult as the number of offshore wind farms increase. It is also becoming increasingly difficult for projects to identify 'like-for-like' measures to compensate for the environmental effects from offshore wind farms.

13. This has led the offshore wind industry, together with Scottish and UK Governments and with key stakeholders, to consider whether there are compensatory measures that might be implemented at a more strategic scale. Such measures could deliver compensation beyond the scope required on an individual project specific basis. Furthermore, the type of measures that could be implemented at a strategic scale will often require the use of powers that are held by government (at a Scottish or UK level).

14. The need to deliver compensatory measures for offshore wind farms at a strategic level, and the requirement for this to be government-led, has been recognised by the UK Government, with the then Department for Business, Energy & Industrial Strategy (BEIS) announcing on 30 December 2022 that the UK Government intended to introduce legislation through the Energy Bill that inter alia would: (a) enable

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measures to compensate for impacts on the marine environment to be taken at a strategic level across multiple projects; and (b) set up a 'marine recovery fund' to help deliver these strategic measures.

15. The need for change to the existing regulatory regime to facilitate a strategic approach is recognised by the Scottish Government in the Draft Energy Strategy and Just Transition Plan (January 2023). This notes that the Scottish Government is pressing BEIS (now the Department for Energy Security and Net Zero) and Defra to implement reforms to the habitats regulatory regime that work for Scotland. The draft Energy Strategy states that such reforms are needed to enable a strategic approach to address the impacts on marine habitats from the expansion of offshore wind. It goes on to state that reforms are "vital to ensure that there is a streamlined and coherent regime in place that can secure sufficient environmental compensation to make projects consentable."

16. The Energy Bill was subsequently amended in committee on 16 January 2023 to give the Secretary of State powers to enable strategic measures to be taken or secured, and to make regulations to introduce one or more 'Marine Recovery Funds'. The associated policy paper[4], notes that "Government intends to agree a list of approved compensatory measures and to consider a broader approach than the current 'like-for-like' requirement." It goes on to state that the powers set out in the Bill would establish "a legal mechanism to use strategic compensatory measures to discharge, where required, obligations to compensate for the environmental effects of offshore wind farm development(s) on the national site network."

17. A mechanism that is proposed to facilitate this is the establishment of the 'Marine Recovery Fund'. Through the Marine Recovery Fund, there would be an optional framework for developers to discharge a condition of their consent to compensate for adverse environmental effects through a contribution to the fund. The Government, or a delegated authority, would then use the financial contributions to the Marine Recovery Fund to deliver approved strategic compensation measures.

18. The Habitats Regulations Assessment undertaken for the Sectoral Marine Plan for Offshore Wind Energy[5] concluded that, based on currently available information, AEoI could not be ruled out for projects that would be developed within a number of the East and North East Plan Options for ScotWind (i.e. which includes Bellrock). Even with increased data being obtained for those option sites it is considered likely that ScotWind project(s) will need to pursue a derogation from the Habitats Regulations, either as a result of the impacts from the project alone or in combination with other projects.

4 RELEVANCE TO BELLROCK OFFSHORE WIND FARM AND SCOTWIND

4.1 The need for a strategic approach to compensatory measures

19. Bellrock and other ScotWind projects are in development and undertaking environmental survey work.

[4] Energy Security Bill Policy Statement: Offshore Wind Environmental Improvement Package Measures (Department for Business, Energy & Industrial Strategy), January 2023

[5] Sectoral Marine Plan for Offshore Wind Energy, Scottish Government, October 2020

20. If, as is expected, there is a need for ScotWind projects to pursue a derogation case then it is anticipated that they will face similar difficulties to those of Berwick Bank in identifying sufficient project-led compensation measures to deliver the scale of compensation necessary to offset their impacts. It is likely that a strategic and/or collaborative approach will be required to deliver the measures necessary.

21. The ScotWind projects are being developed to ambitious timetables, driven by the Scottish Government's legally binding target of reaching net zero by 2045. The ScotWind projects are vital to achieving that aim. A clear framework for developers in Scottish waters to opt into and benefit from strategic compensation is considered integral to the delivery of the capacity needed to meet Scotland's 2045 net zero target. It is important that decisions are not taken only with a view to the interim targets for 2030, potentially to the detriment of reaching the end goal of net-zero and the legally binding 2045 targets. It would be counter-productive if interim targets had that effect. The framework for strategic compensation should take account of the legally binding longer term objectives.

4.2 Berwick Bank Wind Farm

22. Against that backdrop, Bellrock (and no doubt other ScotWind developers) are reviewing the RIAA and Derogation Case that have been submitted with the s36 consent application for Berwick Bank Wind Farm to understand how it would interact with their projects.

23. Berwick Bank or SSE Renewables did not consult with Bellrock in respect of the implications of Berwick Bank Wind Farm, or their derogation proposals, before their application was submitted. In the last week, we have had a high level introduction to the derogation case with Berwick Bank.

24. At this stage, Bellrock considers that the level of information available through the RIAA and Derogation Case makes it difficult to properly understand what the implications would be for Bellrock if consent for Berwick Bank Wind Farm was granted and its Derogation Case implemented. This difficulty is compounded by the lack of guidance or policy that is available from the Scottish Government at this time, on compensatory measures.

25. The Derogation Case implies that the compensation goes beyond the needs of Berwick Bank Wind Farm alone and could "provide a mechanism for compensation for impacts of future Scotwind projects".

26. However, Berwick Bank has failed to state within its RIAA, Derogation Case or publicly available information, its view on what level of compensation is actually required by Berwick Bank Wind Farm. Consequently, the level of compensation created beyond that necessary to offset the impacts of Berwick Bank Wind Farm is also unknown. The compensation requirements for Berwick Bank Wind Farm are not quantified in a manner that would allow such a calculation to be undertaken.

27. Whilst the level of compensation required is ultimately a matter for the Scottish Ministers, as competent authority, the application documents do not attempt to quantify this in any way. Despite the large number of derogation case meetings held (Table A27), there is no indication of whether Marine Scotland, NatureScot or other key stakeholders consider that the compensation provided is in excess of that likely to be required. Without that information, it is not possible for Bellrock (and no doubt other ScotWind developers), to fully understand what the implications would be for our project, or indeed conclude whether any additional compensation will in fact be available in adequate time to support other projects.

28. If that is not confirmed, then it leaves Bellrock (and other ScotWind projects) with a large degree of uncertainty with regards to whether compensation from the closure of SA4 to fisheries is open to them to utilise and, if so, in what quantity. If the calculation of any 'headroom' were to be deferred to a later date once monitoring and studies have taken place, the availability of this compensation measure to support derogation cases for ScotWind projects within our consent applications would be removed. ScotWind projects would have to make alternative plans to support their own derogation cases (where required) as they would have no certainty of the headroom becoming available. We would therefore like to re-iterate the concerns raised in the letter from Scottish Renewables to Marine Scotland dated 22 December 2022 with regards to the need for a robust strategic compensation framework, in particular:

'As a result, the Offshore Enabling Group thinks the Compensation Framework is needed now, more than ever, to provide a clear basis for Scottish offshore wind developers to prepare HRA strategies, including without-prejudice Derogation Cases, with confidence and in line with the expectations of Marine Scotland and NatureScot'.

29. Furthermore, it is not clear what the mechanism proposed would be for future ScotWind projects to make use of any spare compensation capacity that was created, nor the timescale for this. We consider that urgent work would be required by Marine Scotland, NatureScot and the wider industry to develop a mechanism for future projects to benefit from any spare capacity and to set out how this would be allocated to ensure fair and impartial access to any additional compensation which is realised in adequate time to support other projects.

30. The Berwick Bank proposals bring into sharp focus the benefit of having published guidance or policy on the application of compensation measures, and how these will be delivered in the most effective manner for the benefit of projects in Scottish waters. The development of such guidance is essential for two reasons:

    a. The implementation of compensation measures that are strategic in nature on an ad hoc basis risks compromising the delivery of ScotWind projects. It introduces uncertainty into whether future developments will be able to make use of headroom created by measures undertaken to compensate for earlier projects. It introduces uncertainty into how the measures will be funded and by which projects. It makes it more likely that strategic measures will not be targeted in the most effective manner to deliver the greatest amount of offshore wind generating capacity.

    b. The UK Government has stated its aim to have the Marine Recovery Fund in operation by late 2023. If projects in Scottish waters are not able to make use of such a fund, or there is no equivalent set up by Scottish government, then there is a delivery risk to the ScotWind projects. The need for a strategic approach is recognised in the Scottish Government's draft Energy Strategy (January 2023).

31. Based on the information available at this stage, it is not possible to determine the implications on Bellrock offshore wind farm (and no doubt other ScotWind developments) if Berwick Bank Wind Farm was consented and the Derogation Case implemented as proposed. It is not possible to conclude at this stage that the implementation of such measures would be of meaningful benefit for future offshore wind developments in Scotland.

5 CONCLUSION

32. The Derogation Case for Berwick Bank Wind Farm indicates that implementation of the strategic compensation measure of full closure or ecosystem management of SA4 sandeel fishery would result in a higher compensation ratio than is required for that project alone. It is suggested that future ScotWind projects could make use of any additional compensation that is available.

33. Based on the information set out in the RIAA and the Derogation Case it is not clear what level of additional compensation it is envisaged that Berwick Bank requires, and therefore what level (if any) would be available for future projects. It is also not clear what the mechanism would be for other projects to benefit from this whilst ensuring fair and impartial access to any additional compensation which is realised in adequate time to support other projects.

34. We would ask Marine Scotland obtain the necessary information and provide the necessary advice to allow a proper understanding of the basis and implications of Berwick Bank's suggested proposals. Given the significant implications for ScotWind projects, including Bellrock, we would also ask that Marine Scotland ensure there is full and proper engagement and consultation on these proposals once this additional information is available.

35. We would also encourage the Scottish Government to develop policy and guidance as a matter of urgency that sets the framework for the delivery of strategic and/or collaborative compensation measures for the benefit of projects in Scottish waters. Implementing strategic measures in an ad hoc manner without such a framework in place risks compromising the delivery of ScotWind projects.

Yours faithfully
[Redacted]

Dr Nancy McLean
Head of Consents, Bellrock Offshore Wind Farm
E-mail: nmclean@bluefloat.com

Broadshore Offshore Wind Farm Limited

Broadshore
OFFSHORE WIND

Date: 21-02-23

Your Reference: N/A

The Scottish Government
Marine Scotland
Licensing Operations Team
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

By email only: ms.marinerenewables@gov.scot

Berwick Bank Offshore Wind Farm

Section 36 Application

Representation by Broadshore Offshore Wind Farm Limited

1 INTRODUCTION

1. This representation is submitted by Broadshore Offshore Wind Farm Limited ("**Broadshore**") in relation to the application to the Scottish Ministers by Berwick Bank Wind Farm Limited ("**Berwick Bank**") for consent under s36 of the Electricity Act 1989 and marine licences to construct and operate an offshore wind farm. The proposed Berwick Bank Wind Farm is located in the Outer Firth of Forth.

2. Broadshore is a joint venture comprising Renantis UK Limited and BlueFloat Energy, which secured the development rights to an area of seabed in Scottish Waters via the ScotWind leasing round. The proposed Broadshore offshore wind farm development area is located in the north-west corner of the NE6 ScotWind PO in the Central North Sea, approximately 47 km north of Fraserburgh and 70 km east of Wick and covers approximately 134 km^2 in area. Broadshore will be delivering a 900 MW capacity floating offshore wind farm.

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4.1 The need for a strategic approach to compensatory measures

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26. However, Berwick Bank has failed to state within its RIAA, Derogation Case or publicly available information, its view on what level of compensation is actually required by Berwick Bank Wind Farm. Consequently, the level of compensation created beyond that necessary to offset the impacts of Berwick Bank Wind Farm is also unknown. The compensation requirements for Berwick Bank Wind Farm are not quantified in a manner that would allow such a calculation to be undertaken.

27. Whilst the level of compensation required is ultimately a matter for the Scottish Ministers, as competent authority, the application documents do not attempt to quantify this in any way. Despite the large number of derogation case meetings held (Table A27), there is no indication of whether Marine Scotland, NatureScot or other key stakeholders consider that the compensation provided is in excess of that likely to be required. Without that information, it is not possible for Broadshore (and no doubt other ScotWind developers), to fully understand what the implications would be for our project, or indeed conclude whether any additional compensation will in fact be available in adequate time to support other projects.

28. If that is not confirmed, then it leaves Broadshore (and other ScotWind projects) with a large degree of uncertainty with regards to whether compensation from the closure of SA4 to fisheries is open to them to utilise and, if so, in what quantity. If the calculation of any 'headroom' were to be deferred to a later date once monitoring and studies have taken place, the availability of this compensation measure to support derogation cases for ScotWind projects within our consent applications would be removed. ScotWind projects would have to make alternative plans to support their own derogation cases (where required) as they would have no certainty of the headroom becoming available. We would therefore like to re-iterate the concerns raised in the letter from Scottish Renewables to Marine Scotland dated 22 December 2022 with regards to the need for a robust strategic compensation framework, in particular:

'As a result, the Offshore Enabling Group thinks the Compensation Framework is needed now, more than ever, to provide a clear basis for Scottish offshore wind developers to prepare HRA strategies, including without-prejudice Derogation Cases, with confidence and in line with the expectations of Marine Scotland and NatureScot'.

29. Furthermore, it is not clear what the mechanism proposed would be for future ScotWind projects to make use of any spare compensation capacity that was created, nor the timescale for this. We consider that urgent work would be required by Marine Scotland, NatureScot and the wider industry to develop a mechanism for future projects to benefit from any spare capacity and to set out how this would be allocated to ensure fair and impartial access to any additional compensation which is realised in adequate time to support other projects.

30. The Berwick Bank proposals bring into sharp focus the benefit of having published guidance or policy on the application of compensation measures, and how these will be delivered in the most effective manner for the benefit of projects in Scottish waters. The development of such guidance is essential for two reasons:

    a. The implementation of compensation measures that are strategic in nature on an ad hoc basis risks compromising the delivery of ScotWind projects. It introduces uncertainty into whether future developments will be able to make use of headroom created by measures undertaken to compensate for earlier projects. It introduces uncertainty into how the measures will be funded and by which projects. It makes it more likely that strategic measures will not be targeted in the most effective manner to deliver the greatest amount of offshore wind generating capacity.

    b. The UK Government has stated its aim to have the Marine Recovery Fund in operation by late 2023. If projects in Scottish waters are not able to make use of such a fund, or there is no equivalent set up by Scottish government, then there is a delivery risk to the ScotWind projects. The need for a strategic approach is recognised in the Scottish Government's draft Energy Strategy (January 2023).

31. Based on the information available at this stage, it is not possible to determine the implications on Broadshore offshore wind farm (and no doubt other ScotWind developments) if Berwick Bank Wind Farm was consented and the Derogation Case implemented as proposed. It is not possible to conclude at this stage that the implementation of such measures would be of meaningful benefit for future offshore wind developments in Scotland.

5 CONCLUSION

32. The Derogation Case for Berwick Bank Wind Farm indicates that implementation of the strategic compensation measure of full closure or ecosystem management of SA4 sandeel fishery would result in a higher compensation ratio than is required for that project alone. It is suggested that future ScotWind projects could make use of any additional compensation that is available.

33. Based on the information set out in the RIAA and the Derogation Case it is not clear what level of additional compensation it is envisaged that Berwick Bank requires, and therefore what level (if any) would be available for future projects. It is also not clear what the mechanism would be for other projects to benefit from this whilst ensuring fair and impartial access to any additional compensation which is realised in adequate time to support other projects.

34. We would ask Marine Scotland obtain the necessary information and provide the necessary advice to allow a proper understanding of the basis and implications of Berwick Bank's suggested proposals. Given the significant implications for ScotWind projects, including Broadshore, we would also ask that Marine Scotland ensure there is full and proper engagement and consultation on these proposals once this additional information is available.

35. We would also encourage the Scottish Government to develop policy and guidance as a matter of urgency that sets the framework for the delivery of strategic and/or collaborative compensation measures for the benefit of projects in Scottish waters. Implementing strategic measures in an ad hoc manner without such a framework in place risks compromising the delivery of ScotWind projects.

Yours faithfully
[Redacted]

Brian McGrellis
Head of Environment and Consents, Broadshore Offshore Wind Farm
E-mail: brian.mcgrellis@falckrenewables.com

British Telecom

From: radionetworkprotection@bt.com
To: MS Marine Renewables
Subject: Berwick Bank Offshore Wind Farm - Section 36 and Marine Licence Applications - Consultation - Response Requested by 21 February 2023 WID12056
Date: 05 January 2023 13:44:00
Attachments: image002.png
image003.png

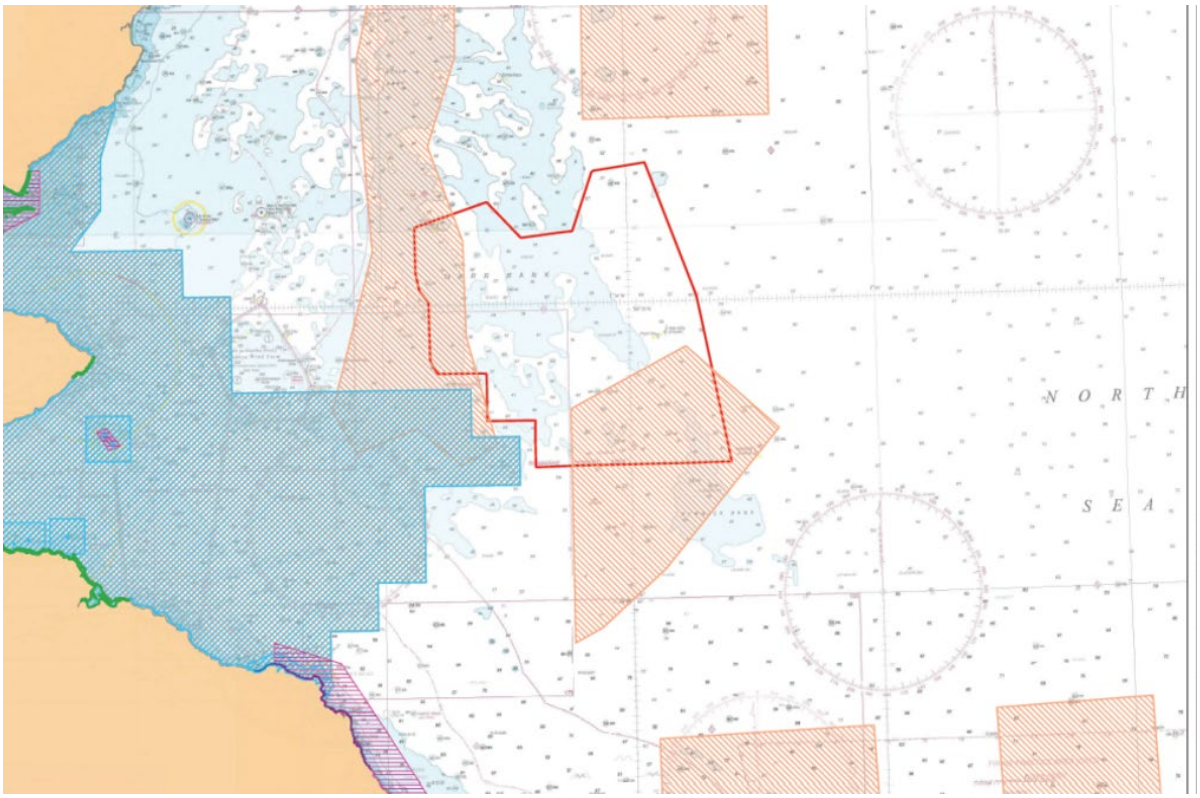
OUR REF; WID12056

Good afternoon Emma

Thank you for your email dated 22/12/2022.

We have studied the proposed windfarm development, with respect to EMC and related problems to BT point-to-point microwave radio links.
The conclusion is that, the Project indicated should not cause interference to BT's current and presently planned radio network.

Kind Regards
Chris



Caledonia Offshore Wind Farm Ltd

27 February 2023 Ref: UKCAL-OW-CON-HRA-LET-00001

Marine Scotland

Licensing Operations Team

1A South Victoria Quay

Edinburgh

EH6 6QQ

By email: ms.marinerenewables@gov.scot

Berwick Bank Wind Farm Limited Section 36 Application - Representation by Caledonia Offshore Wind Farm

Dear MS-LOT,

Thank you for the opportunity to comment on the proposals for Berwick Bank Offshore Wind Farm (Berwick Bank OWF). Caledonia Offshore Wind Farm (Caledonia OWF) has supports the consultation response submitted by the North East & East Ornithology Group (NEEOG), however wish to provide some additional feedback directly from the project. Caledonia OWF provide the following additional comments:

- Caledonia OWF note the compensation measure options that are proposed by the Berwick Bank OWF Derogation Case. This response is in relation to the SA4 Fisheries Management measures, option 1 closure of the SA fishery and option 2 ecosystem based approach to the management of SA4. It is noted that fisheries measures are not yet secured.
- Caledonia OWF believe that the scale of compensation offered by the SA4 Fisheries Management measures outlined creates a unique opportunity for strategic compensation for future projects, particularly ScotWind projects on the east coast of Scotland where there is a high degree of ornithological constraint when projects are considered cumulatively.
- It is imperative that the SA4 Fisheries Management measure be utilised as strategic compensation for the wider industry rather than a project specific measure. Failure to grasp such a strategic opportunity would be detrimental to our national ambitions on climate change and the offshore wind industry, and all the supply chain benefits that come with it. In this regard, Caledonia OWF object to the use of SA4 Fisheries Management measures as project level compensation solely for Berwick Bank OWF.
- Given the experience of Ocean Winds as a developer, constructor and operator of offshore wind farm projects in Scotland, and indeed the Moray Firth, Caledonia OWF can be delivered at speed and at low cost. The Scottish government has a legally binding target to reach Net Zero by 2045, Caledonia is a vital piece of the jigsaw that will enable this target and shorter term targets to be met. The utilsation of Strategic

Compensation will likely be a key enabler for delivery of Caledonia OWF and indeed other ScotWind projects.

- Caledonia OWF is working collaboratively with other ScotWind projects, Scottish Government and UK government (through OWIC) to facilitate discussion and action to ensure we seize opportunities around strategic compensation. Caledonia OWF is open to collaboration with Berwick Bank OWF to ensure strategic compensation offered by SA4 management can be realised.

[Redacted]

Mark Baxter, Caledonia OWF Project Director.

Caledonia Offshore Wind Farm Ltd
5th Floor Atria One, 144 Morrison St.
EDINBURGH EH3 8EX

Registered Office **c/o Shepherd and Wedderburn LLP, Octagon Point, 5 Cheapside, London EC2V 6AA United Kingdom**
Company Number 13844888

Cocksburnspath and Cove Community Council

Cockburnspath and Cove Community Council (CCCC) OBJECTS to this Planning Application. (Berwick Bank Wind Farm (BBWF) Onshore ref 23/00162/PPM & Offshore Ref 22/00005/SGC)

These planning applications were discussed at the meeting of the Cockburnspath and Cove Community Council on 10th May 2023 and the opinion and OBJECTION of the CCCC are detailed below. While it is understood that the CCCC are not a statutory consultee on these applications and that the CCCC are situated over the border in Scottish Borders it is felt that the development is of such significance that there will be an impact that needs to be highlighted.

This objection is made primarily on the grounds of:

1. The absence of any cumulative impact assessments – taking into account the consented Eastern Link developments, proposed Branxton Battery Storage, proposed North Belton Battery Storage, proposed Crystal Rig IV windfarm and associated solar farm, final phase of Landfill operations at Oxwellmains, and eventual de-fuelling of Torness Power Station – cumulative assessments are needed of environmental, transport, and health impacts
2. The transport impact of the increased volume of traffic that will be utilising the Cockburnspath and Cove roundabout on the A1.

Cumulative Impact Assessment:

It is known that there are somewhere in the region of nine major development projects at various stages of planning within the area. Outside of a public meeting hosted by the East Lammermuir Community Council on 25 April 2023 that was attended by representatives of CCCC, there is no imperative for each of the developers to consult one another. The documentation attached to this planning application indicates a search of the Planning Database to build a view of conflict during the development phase rather than there being any requirement to ensure that the developments plan and execute in any kind of formalised partnership. Given the extended period over which the accumulated development projects are expected to take place, it is our belief that a more formal association between the projects needs to be created, perhaps in the form of a joint Project Office.

While it is understood that the East Lothian Council can only take a view of each application on its own merits, it is the belief of CCCC the sheer number of development projects at various stages of planning and development in the area must necessitate a broader view across the piece.

The sheer number of substations, collector stations and battery storage facilities etcetera proposed for this rural, seaside area are turning this part of the North Sea coast into an extended industrial zone.

Transport Impact:

The Cockburnspath and Cove Community Council area lies less than a mile from the eastern edge of this development. From the details presented in the Transport plans attached to this Application it would appear that the delivery route for Substation 3 would be our main concern.

It is not clear from the Abnormal Route Assessment document whether the loads will be transported along the A1 from the southerly or northerly direction. If from the north it would appear that the expectation here is that the loads would have to turn across the north-bound A1 traffic onto the road for Bilsdean. This will cause significant inconvenience and potential for road traffic accidents on what is an already difficult junction.

If the abnormal loads are to come from the southerly direction then this will impact the residents of Cockburnspath and Cove by potential delay to northbound traffic as it approaches and traverses the roundabout, with further issues created as the traffic attempts to then make the difficult turn onto

the Bilsdean road. This has the potential to be even more dangerous than making the turn across the flow of A1 traffic if coming from the northerly direction.

The Transport impact also speaks to the lack of joined up planning between this proposed development and other proposals that have been before East Lothian Council. It is our understanding that the planning requirements for the Branxton Substation included a direction that traffic coming from the northerly direction would be directed on to the Cockburnspath and Cove roundabout and then back along the A1 to the Bilsdean junction where a new slip road would have to be constructed in the field in order to avoid the dangerous turning of large HGV's and Abnormal Loads. For no such assumption to have been included in the Abnormal Load Plan suggests that our concerns regarding cumulative effect and lack of consultation are valid.

Dee District Salmon Fishery Board

From:	Jamie Urquhart
To:	MS Marine Renewables
Cc:	Edwin Third
Subject:	RE: Berwick Bank Offshore Wind Farm - Section 36 and Marine Licence Applications - Consultation - Response Requested by 21 February 2023 - Nil return
Date:	23 February 2023 10:58:38
Attachments:	image001.png

Dear Emma

Yes apologies I can confirm that this is a Nil Return from the Dee DSFB for this consultation response.

Best regards Jamie

Jamie Urquhart
Fisheries Protection Manager
Dee District Salmon Fishery Board & River Dee Trust

River Office
Mill of Dinnet
Dinnet
Aboyne
AB34 5 LA

Office: 01339 880411
Mobile: [Redacted]
Web: www.riverdee.org.uk

Dundee City Council

From:	Alistair Hilton
To:	MS Marine Renewables
Subject:	RE: Berwick Bank Offshore Wind Farm - Section 36 and Marine Licence Applications - Consultation - Planning Authorities - Response Requested by 22 April 2023
Date:	19 January 2023 13:45:47
Attachments:	image001.png

Thank you for your consultation request.

I can advise that Dundee City Council does not have any comment on the applications.

Regards,

Alistair Hilton
Principal Planning Officer (Planning & Economic Development) at City Development

E alistair.hilton@dundeecity.gov.uk
P 01382 433760

W www.dundeecity.gov.uk
A Dundee House, 50 North Lindsay Street, DUNDEE, DD1 1QE

East Lothian Council

Our Ref: CONS GOV\MS - electricity projects\Berwick Bank\2022 Application
Your Ref: None given

Date: 22 April 2023

Monica Patterson
EXECUTIVE DIRECTOR (SERVICES FOR COMMUNITIES)

John Muir House
Haddington
East Lothian
EH41 3HA
Tel 01620 827827
Fax 01620 824295

Via email to MS.MarineRenewables@gov.scot,

Dear Sir/Madam

ELECTRICITY ACT 1989
The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017
The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010
The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017

MARINE AND COASTAL ACCESS ACT 2009
The Marine Works (Environmental Impact Assessment) Regulations 2007

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989, MARINE LICENCES UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE BERWICK BANK OFFSHORE WINDFARM, OFF THE COAST OF EAST LOTHIAN AND THE SCOTTISH BORDERS

1. I refer to your email of 22 December 2023 inviting representations on the above. I apologise for the late arrival of our comments. The Council have not consulted any other bodies such as Community Councils in preparing this response. We have placed the application on East Lothian Planning Online which is Part 1 of the planning register, and consequently it has also been published it in the Weekly List of applications. Interested parties can make comments to us there, however no comments have been received.
2. For your information, application has been made to East Lothian Council for planning permission in principle for onshore works related to this proposal. The application and related EIAR can be found at www.eastlothian.gov.uk/Planningonline using the reference number 23/00162/PPM. The Council considers that the offshore works and the onshore works to connect the project to the national grid form different parts of the same project. The EIAR information for all parts of the project should be easily findable for the public without a paper chase.
3. Works in the intertidal area included in this proposal will also require consent from East Lothian Council as planning authority. I therefore do not offer comments on that aspect of the works here.
4. We consider the proposal will have adverse impacts on the seascape and visual amenity of East Lothian, which overall are significant. The proposal will significantly extend the appearance of wind turbine development along the currently undeveloped sea horizon and intensify the appearance of wind turbine development in areas where it appears with already consented proposals, in particular Neart na Gaoithe. Visual and seascape effects will occur during good visibility both in the day time and at dawn/dusk and at night, as the proposal will require aviation lighting. In our view this change to the appearance of the area would be

detrimental to the natural beauty of our area due to its nature and extent, and the nature of the receiving scene.

5. However, the Council recognises the need to produce electricity by low carbon means and the strong policy support for this. In particular, we note the requirements of the Paris Agreement 2016, energy targets agreed with the EU which currently remain applicable following Brexit, the Climate Change Act 2008 and Climate Change (Scotland) Act 2009 and Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 which legislated for Scotland to reach net zero by 2045. The UK Government's Energy White Paper included plans for a substantial increase in offshore wind capacity. The programme for Scottish Government 2021 also considers offshore wind as key to meeting climate change goals. "Securing a green recovery on a path to net zero: climate change plan 2018–2032 – update" also recommends increased investment in renewable energy, particularly onshore and offshore wind. This strategy supports the actions of the Offshore Wind Policy Statement which looks for the development of between 8 and 11 GW of offshore wind capacity by 2030, and the UK Governments Energy Security Strategy which seeks 50GW of offshore wind capacity by 2030.
6. National Planning Framework 4 identifies Strategic Renewable Energy Generation and Transmission Infrastructure as a national development. National developments are described as a focus for delivery and notes that Regional Spatial strategies and Local Development Pan should identify and support national developments relevant to their areas. National Planning Framework 4 Policy Intent for Energy is to encourage, promote and facilitate all forms of renewable energy development onshore and offshore.
7. This Council declared a climate emergency in 2019 and therefore recognises the need for urgent action.
8. Appendix 21 of the EIAR notes there are predicted to be greenhouse gas emissions savings from construction of the project compared to current generation mix. The proposal is predicted to take 8 years 2 months to 'pay back' greenhouse gas emissions of construction.
9. The Council therefore **does not object** but recommends conditions are placed on the consent to (1) keep the lighting scheme under review to ensure impact from lighting on East Lothian is avoided or minimised (2) provide for decommissioning to ensure that impacts on East Lothian do not continue further than necessary and (3) to secure good practice in construction and operation to avoid pollution of our shores and make sure that any costs of clearing up any incidents that do occur do not fall to the Council, where this is not covered by other statutory provision. Please also note our comments attached below.
10. We would recommend that further consideration is given to the methods and materials of construction as details of design are finalised to ensure that greenhouse gas emission are minimised.

11. If you would like to discuss the contents of this letter further, please contact J Squires (Monday to Thursday only) on 01620 827370, or email to jsquires@eastlothian.gov.uk

Yours sincerely,

J Squires

Pp Keith Dingwall
Planning Service Manager
Development
Communities
East Lothian Council
John Muir House
HADDINGTON
EH41 3HA

Consideration

12. In this response the following terms and abbreviations are used:

    The Applicant – Berwick Bank Wind Farm Limited, a wholly owned subsidiary of SSE Renewables Limited
    ELC – East Lothian Council
    EIA – Environmental Impact Assessment
    EIA Regulations – The Electricity Works (Environmental Impact Assessment)(Scotland) Regulations 2017
    EIAR – Environmental Impact Assessment Report
    NPF4 – National Planning Framework 4
    SLA – Special Landscape Area
    SPA – Special Protection Area

13. The application sites is just over 1000 km2 and is located around 47.6 km from East Lothian to the nearest point. The array area overlaps Marr and Berwick Bank. The proposal will consist of a maximum of 307 wind turbines and other offshore infrastructure. Up to 8 offshore cables will connect the OSPs/Offshore converter stations to landfall at East Lothian coast at Skateraw harbour. There, the cables will connect to the onshore substation/converter station then onwards to the grid connection point at Branxton, SW of Torness Power Station.

14. No mention is made to transportation of any of the construction materials locally by land. On this basis, there would not be any impacts on the roads and transportation infrastructure within East Lothian associated with the offshore elements of the proposals to which these applications related, and on that basis we have no comment to make on impact on roads.

Environmental Impact Assessment

15. This proposal was subject of a Scoping Request and Opinion. We were consulted on this and provided comments on 26 November 2021. The EIAR has used a Rochdale Envelope of looking at the worst case scenario for different receptors, which differ according to the receptor.

Climate

16. Schedule 4 of the EIA Regulations sets out information to be included in EIARs. This includes at part 5f, the impact of the development on climate. Mitigation of climate change is one of the main reasons for policy support for proposals such as this. The EIAR in Appendix 21 states that the project will save 9,178,312 tCO2e from being emitted in comparison to conventional generation. However, once construction phase greenhouse gas emissions are included this is predicted to fall to 2, 951,519 tCO2e. The amount of savings depends on how the electricity would otherwise have been produced. The figures given include emissions from the onshore works though it is not clear if they include emissions from laying the Cambois connection cable. This should be clarified with the Applicant, and if this has not been included in the calculation an indication of the level of emissions should be given.
17. The EIAR states that the project will take 8 years and 2 months to 'pay back' the greenhouse gas emissions related to construction. This is stated to be in line with UK and Scottish governments net zero ambitions as the savings will start in 2036. The UK government target is for 50GW of offshore capacity by 2030 (see the Energy Security Strategy). The Climate Change Committee in their 2022 Report to Parliament criticise the UK pathway to net zero in general for focussing on technological solutions rather than demand side management however their Balanced Net Zero Pathway also includes 40GW of offshore generation by 2030. Construction of projects such as this is are therefore in line with overall carbon reduction plans.
18. The greenhouse gas emissions of the proposal come mainly at the start of the project and it is not clear how the emissions of the project relate to consideration of the peak in emissions. The Paris Agreement recognised that to achieve its goal global emissions of greenhouse gases would need to peak as soon as possible. The IPCC finds that limiting temperatures to 1.5 degrees centigrade will require peaking of global greenhouse gas emissions as soon as possible and no later than 2025. As greenhouse gas emissions of the project mostly occur in construction stage i.e. early on to avoid increasing peak emissions the emissions associated with construction should be reduced as far as possible.
19. Appendix 21 of the EIAR concludes that the project will have a significant beneficial impact on the climate. We do not agree with this, as the project will cause emissions. It will have benefits in comparison to fossil fuel generation assuming continued electricity use (which is not an unreasonable assumption): however the overall effect is only less negative, not beneficial, and should be reported as such.
20. The carbon emissions assessment does not appear to consider the end use of materials that are to be decommissioned. Re-use of materials such as steel could make a difference to the long term emissions of the project and may be easier if the possibility of re-use is considered now so that materials can be chosen and the project constructed in a way that makes them easier to retrieve and re-use.
21. By assessing only the worst case scenario of materials and construction methods for construction emissions, it is difficult to see what the impact of choices over the design and construction of the project are and what their effects on carbon emissions are. For example, if it is possible to bury cables with concrete or rocks and concrete is the worst case, it is not possible to see what the different effects of using concrete or rock is. The decision maker is therefore in a poor position to require lower greenhouse gas emission solutions. We do not have the expertise to advise on the carbon effects of different construction methods or

materials. However, there are adverse impacts on East Lothian on seascape and visual amenity, and if it is to be accepted we would expect therefore that the public benefits of the scheme including the comparative reduction of greenhouse gas emissions in production of electricity, are maximised. We would therefore request that the greenhouse gas emissions of any different design or construction methods are considered. This would help ensure that the greenhouse gas emissions associated with the project are kept as low as possible, and are not lost sight of in the overall 'beneficial' effect of the project.

22. In our Scoping Response we asked that the possibility of local climatic effects, such as changes to cloud and precipitation patterns in particular caused by this proposal and potentially cumulatively with other proposals be considered. The inclusion of this information was not noted in Marine Scotlands Scoping Report, however the Scoping Report does refer to consultee responses and notes that these responses should be read in full. We assume that our response has been read and it is considered that it is not possible there would be any significant changes to local climate. It would have been useful to have this confirmed in the EIAR however, which it does not appear to have been.

Landscape (natural beauty of the area)

23. The Rochdale Envelope approach for seascape and visual impact assessed a design of 179 wind turbines at the highest potential blade tip height as the worst case scenario for this assessment. A 60km study area was used and we agree this is generally appropriate.
24. In the description of the baseline, at para 35 the EIAR states that theoretical visibility becomes more fragmented inland as views of the sea are increasingly screened by rising land or coastal landforms. In general this may be correct, however there is also higher ground with open views of the sea. Inland there may also be areas where the turbines are visible but the sea is not, which may give visually confusing views of the turbines appearing as incongruously small turbines on a landform whereas in fact they are very large ones in the sea much further away. Although views from the coastal edge are unimpeded, where the land is raised more of the proposal may be visible. We consider this section therefore somewhat understates the potential for impact of the turbines on views inland.
25. We note that the proposal will not always be visible due to meteorological conditions. However, the days when people will most appreciate the views are those where visibility is good, and the proposal will be visible on all of those very clear days. So even if the proposal is obscured much of the time, the days when it is visible are probably the days people will most be appreciating the view. Also, overall visibility may improve with improvements to air quality (so the proposal may be visible more often in the future) though this will not affect days where visibility is limited by sea fog or haze.
26. Paragraph 51 states that the darkest parts of East Lothian are located inland; the coast at Tantallon is also relatively dark. There is some holiday accommodation by Ravensheugh beach, and John Muir Country Park is popular with wild campers, so there may be use of this area at night.
27. The assessment refers to the Regional Seascape Areas defined in the Forth and Tay Offshore Wind Developers Group Seascape Character Assessment. This Council did not entirely agree with the conclusions of this study as regards parts of our area, in particular we considered the SA17 unit to have a higher sensitivity than stated.
28. For golf courses, we are unclear as to why North Berwick Golf courses were not considered in the assessment. They appear to have potential visibility from the ZTV information. We agree that there is no potential for significant effects from Archerfield due to distance, landform and intervening trees and buildings. We agree that in general the golfing experience from this course will not be significantly impacted by the proposal due to distance and frequency of visibility as well as intervening topography and trees. Winterfield and Dunbar golf courses are

more open, and are likely to have visibility of the proposal. We do not necessarily agree that the presence of Neart na Gaoithe necessarily moderates the impact, as this proposal intensifies the combined view of turbines on the horizon and either alone may have less visual impact.

29. We have the following comments on the viewpoints that are from or include East Lothian. We recognise that the proposal will not always be visible due to weather conditions and our comments are based on those times that it is visible, which are the days when the clearest views are to be had.
30. For all viewpoints, when considering significance, the effect is described in the EIAR as direct, long term and reversible. We agree the effect is direct and long term, however do not consider the effect on perception entirely reversible due to its long term nature. The European Landscape Charter defines landscape as "an area perceived by people whose character is the result of the action and interation of natural and/or human factors'. The application is for a 35 year consent period. For a significant part of the population therefore, this will be the remainder of their lives, so that they will not again perceive the seascape without the proposal; the effect of their change to those peoples perception of the landscape will not be reversible.

31. Viewpoints 1- 4: 14, 16 – 20

32. East Lothian either cannot be seen, or is seen only distantly from these points and the proposal will not affect direct views of East Lothian or perception of our seascape from these viewpoints.
33. **Viewpoint 5: Fife Ness and Viewpoint 6 Crail:** East Lothian is visible from these viewpoints. The proposal is seen generally to the east, with Neart na Gaoithe in the foreground. The views of the open sea and horizon from this point is already being altered by the construction of Neart na Gaoithe, and the effect of this proposal would be to intensify this impact. The general seascape, which includes good views of East Lothian, is affected by the proposal. This adversely affects the overall context of the view of East Lothian in its seascape. However, the proposal would be visible to the left of the field of view if at all when looking at East Lothian itself, and open sea horizon between the proposal and East Lothian is retained.
34. The proposal is to the east while the East Lothian coast is to the south from here. The proposal will affect the general seascape context of the view from this point. The viewer would perceive the seascape as a whole, which includes views of East Lothian, as containing further large scale offshore wind development. This is likely to affect the overall perception of the seascape as less natural. However, views directly towards East Lothian and its coast will not be directly impacted, and some open sea horizon remains between the proposal and East Lothian, retaining part of its immediate setting within undeveloped coastal waters.

35. Viewpoint E: St Monans.

36. The baseline photography of the second photograph, the view towards East Lothian, is poor, being taken towards the sun. This bleaches out much of the existing view and so does not fully show the cumulative impact with other turbines that are in the baseline. However from this point it can be seen the proposal appears between the May Island and Fife, with a clear horizon between the May Island and East Lothian. The overall appearance of turbines in the view is intensified from the existing consented position which includes the turbines of Neart Na Gaoithe in the foreground. Due to the angle of view towards the proposal from this point, views of East Lothian within its seascape setting

37. Viewpoint 7: North Berwick Law

38. This viewpoint is around 55km from the proposal. North Berwick Law is an elevated and popular viewpoint from which there are wide views in all directions. We agree that the sensitivity of this viewpoint is high. The assessment states that there are no facilities for

appreciating the view, in fact there is a viewpoint indicator near the summit which shows points of interest.

39. The EIAR assesses the magnitude of change as low. We consider this to be medium-high, due to the considerable extension of the view of turbines in an apparent southwards direction from this point, roughly doubling the amount of sea horizon occupied by turbines from here. Turbines will now appear extending a considerable for a considerable length along the sea horizon on either side of the Bass Rock. In the formation shown, the layout appears in regimented lines one behind the other in some parts, with a more spaced out appearance in others. It is inevitable with a wind farm of this size that there will be some parts that appear in regular formation while other parts appear more random, and this affect is exacerbated when more than one project at different distances is visible.
40. The Bass Rock is a key feature of this view, and number of turbines sitting behind this will increase considerably, intensifying the effect as the turbines overlap there, with little apparent spacing between them. The appearance of clear sea surrounding the Bass Rock does remain however, with the turbines sitting on the horizon beyond the top of Rock. It is likely that in some meteorological conditions the Bass Rock will be visible but the turbines will not. The turbines will appear on either side of the Bass Rock on lower parts of North Berwick Law however.
41. Views from North Berwick Law towards Tantallon Castle are also affected, as the turbines will sit behind the castle in this view, losing the uninterrupted sea horizon (other than ships which are by their nature transitory) currently visible there. Although there are hubs visible and aviation lighting may be visible, it is unlikely many people will be at this viewpoint in the dark due to the steep nature of the slope which makes climbing to this point in poor lighting hazardous. However, it is possible people may be there for the dawn or sunset. Aviaition lighting can make the development site appear more affected by human activity than the turbines themselves do.
42. As noted in our response at Scoping, we consider the East Lothian coast condition to be medium to high, and having a high sensitivity in particular from Aberlady to Dunbar. We consider the magnitude of change to be moderate, as it roughly doubles the extent of wind turbine development visible on the sea horizon, and appears in the backdrop of important features of the landscape, namely the Bass Rock and Tantallon castle. Where the turbines appear behind those of Neart na Gaoithe, the view becomes more cluttered. Although the days on which the proposal will be visible are limited, it is on that sort of day that people will be particularly drawn to climb the Law for its views. We therefore consider the impact on the view from North Berwick Law to be greater than stated in the EIAR, and that the effect is significant.

43. Viewpoint 8: Tantallon Castle

44. We agree that the sensitivity of this viewpoint is high. The outlook from this point is an important part of the setting of the castle, and is also important for cultural heritage value as watch would have been kept for potential attackers arriving by sea. As noted above, the Council considers the condition of the East Lothian coast to be medium to high, with a high sensitivity from Aberlady to Dunbar.
45. At this viewpoint the proposal extends views of turbines by between roughly a third and a half again from the existing consented development, with the turbines of Neart na Gaoithe in the foreground for some of its extent. The turbines therefore alter a considerable part of the horizon from its natural condition other than shipping which passes, to one that is developed. The extent of turbines may further draw the eye from the Bass Rock which is the current focus of the view, although consented development does already have this effect. From the point where the photograph was taken the proposal in addition to consented wind turbine development will have the effect of almost entirely closing off the open sea horizon (a section remains open between the Bass Rock and Fife Ness). Views of the unbroken sea horizon will

therefore be considerably altered, and we consider this to be a medium-high impact on a highly sensitive receptor. We therefore consider the effect on this viewpoint to be significant.

46. Hubs are visible and visibility of night lighting may occur, however, entry to the castle is controlled by Historic Environment Scotland and the castle is closed when it is dark.

47. Veiwpoint 9: Ravensheugh

48. The EIAR considers the sensitivity of this view to be medium high. We consider the sensitivity of this view to be high. This is one of the most natural appearing areas of East Lothian. It contains views of one of the most iconic features of East Lothian, the Bass Rock, and its value has been recognised through designation as Special Landscape Area and also as John Muir Country Park. It is a well-used recreational beach, as is the beach at Belhaven Bay, a very well used recreational beach from which the views will be similar.
49. The EIAR describes the magnitude of change as low. We disagree with this. The field of view will extend a further 27 degrees of sea horizon containing development. This is described in the EIAR as a narrow field of view. However, it is a larger proportion of the view of the sea horizon, which is the element which is changing, and reduces the amount of natural sea horizon siginificantly. It will also intensify the appearance of wind turbine development where it appears behind Neart na Gaoithe, reducing the apparent spacing of those turbines within the sea. Views of the open sea horizon are therefore much reduced.
50. If aviation lighting is visible from this point, the naturalness of the seasacape in the darkness will be affected. There is some recreational use of this area at night time.
51. We consider the effect on this view (and similar in the area) to be significant.

52. Viewpoint 10 Dunbar

53. We agree that the sensitivity of this viewpoint is High. We disagree that the magnitude of change is medium low, and consider it to be at least medium if not medium-high.
54. The coast around Dunbar is highly scenic, which is recognised through designation as a Special Landscape Area. From this viewpoint the proposal again considerably extends the effect of introducing turbines into an unbroken sea horizon. From some points, this may extend the view of turbines close to or beyond where the sea horizon meets the land form, visually enclosing the southern end of the bay. Views will be obtained of the proposal both during the day and at night, as people visit the clifftop walk, and harbour areas for their scenic value during the day but also at dawn and probably more so at dusk and sunset. Turbines will be seen more in the backdrop of seascape elements such as the cliff and seastacks, whereas existing consented development is read more within the open sea. There is a considerable loss of the extent of sea horizon (which is a major element of the view) which does not contain development; although ships pass these are perceived as transitory and so have less effect on the perception of the seascape as natural.
55. We consider the effect on this viewpoint to be significant.

56. Viewpoint 11: Skateraw

57. The EIAR considers the sensitivity of the view to be medium. This is in part due to the presence of Torness Power Station. This station is planned to be decommissioned over the lifetime of the windfarm however, and if the land there is restored the baseline would be less developed, increasing sensitivity. The location remains a popular recreational destination and is on the John Muir Way. We would agree that the sensitivity of this viewpoint is medium though may increase during the life of the proposal. We consider the magnitude of change to be medium. The sea horizon is significant element of the view from this point, and this proposals in combination with existing consented development will result in almost the complete loss of views of the unbroken sea horizon from this point.

58. Viewpoint 12: Cove

59. The EIAR considers the sensitivity of the viewpoint to be medium high. We will not comment on this as it is in Scottish Borders Council Area though there are views northwards to East Lothian, taking in the coast including Torness Power Station. The magnitude of change is considered to be medium. The definition of High in Table 15.16 includes 'introducing elements that are uncharacteristic in the baseline seascape view' and that 'The addition of the proposed development will result in large scale change, loss or addition to the baseline seascape view'. This proposal although distant adds a new element into the view (although similar in type to the existing Neart na Gaoithe) extends over 43 degrees of the field of view, and a significant proportion of the sea horizon which is a key element of the view. The magnitude of change could therefore be considered High or medium - high.
60. The proposal is to the east while the East Lothian coast is to the north from here. The proposal will affect the general seascape context of the view from this point. As with Viewpoints 5 and 6 from Fife, the view of the seascape would be perceived as less natural, affecting overall perception of the seascape, but the proposal would not directly affect views of East Lothian itself.

61. Viewpoint 13: Fast Castle

62. The baseline photography here shows a view of the East Lothian coast which is in haze, which understates its attractiveness. As with the viewpoint at Cove, the proposal introduces development to a considerable section of the unbroken sea horizon, extending the area affected by development considerably. As with the the Fife and Cove viewpoints, although the proposal affects the overall perception of seascape direct views of the East Lothian coast are not affected.

63. Viewpoint 15 St Abbs Head

64. East Lothian is distant from this point, though North Berwick Law and the Bass rcok may be possible to distinguish on a good day. The proposal is in the opposite direction from views of East Lothian, and will not affect the perception of our seascape or direct views of the area.

65. Viewpoint 21: Pencraig Hill

66. We requested a viewpoint from Pencraig Hill to show the view from this point, which is an A road and has a layby, across Belhaven Bay which is an elevated and fine view, and one from which we hoped to understand the effect of the windfarm as viewed across the land. Unfortunately the point chosen for the photo has the proposal largely obscured by trees, although is from an existing viewpoint indicator with interpretation at the layby. The photograph in addition has poor definition, possibly because of the darkness of the trees. East Lothian is predicted to have considerable potential visibility of the proposal, much of which is not at the immediate coast, including from the A1 trunk road, and it is therefore regrettable that at least one good representation of this has not been shown.
67. The EIAR considers the sensitivity of the viewpoint to be medium. The viewpoint was intended to be representative of travellers on the A199 as it descends Pencraig Brae, from where fine views across East Linton and Belhaven Bay, backed by the open sea, can be had, as well as people stopping at the layby. The view is across towards Belhaven Bay SLA, and provides an elevated view across it which is excellent. The EIAR states that the attention of interest of people at this location may only be partially towards the sea view, with the Traprain SLA forming a focus. We consider that although viewers at this point may look inland to Traprain Law, as well as towards North Berwick Law, the views of which are not affected by this proposal. However, the view over Belhaven Bay and towards the proposal, which is not shown on the visualisation, is fine. It is all the more noticed by travellers east on the A199 as it appears suddenly, once the traveller has reached the top of Pencraig Brae and starts to descend. This view is quintessential East Lothian, being towards a beautiful section of coastline over the attractive settlement of East Linton set in arable farmland. We therefore consider that the sensitivity of the viewpoint is medium high.

68. The EIAR considers the magnitude of change as low. We do not disagree with this from the actual viewpoint chosen, from where the proposal will be seen largely behind trees. However, from the wirelines given from this point, we do not consider this 'low' level of change to be representative of views from this point generally. Although the proposal is distant it is on the sea horizon. At times of day when the sun is behind the viewer, the turbines are likely to be more noticeable. They will spread over 34 degrees of the field of view, and from the wireline this appears to almost double the amount of sea horizon taken up with turbines. It appears that they will be seen behind Belhaven Bay, a main focus of the view for travellers. Although the turbines will be distant, and take up a small vertical amount of the view, we consider that the magnitude of change would be at least moderate.
69. We consider the effect on this view to be likely to be significant.

Lighting

70. A Lighting and Marking Plan is shown. It is not clear if there have been negotiations with the CAA and others to negotiate any reduced scheme based on a study of aircraft using the area. As noted, Article 233 of the Air Navigation Order 2016 allows for reduction in lighting intensity to not less than 10% of the minimum peak intensity where visibility is more than 5km in all directions. This should considerably reduce the visibility of turbine lighting from the coastline of East Lothian. However, visual information showing the worst case does show visibility of lighting from the viewpoint at Dunbar, which we would expect to be similar from other points of the coast where the hubs of the proposal can be seen. Some parts of this coast are, as the EAIR notes in para 830-1, valued for their night time views. The assessment of the Dunbar viewpoint considers that the sensitivity of the viewpoint is medium. As people may visit for example the harbour for its natural interface with the sea at night we consider this is perhaps an underestimate. We consider it is less true of less developed parts of the coast where people may be holidaying specifically to appreciate the naturalness of the area. The magnitude of change is considered in the EIAR to be medium low. We disagree with this, as it extends fixed lighting over a considerable further length of the sea horizon. Lighting by its nature draws the eye, and alters its natural appearance even if it only takes up small part of the field of view.
71. It is possible that technological developments or regulatory change may reduce the need for aviation lighting. If it is the case that aviation lighting proves to be visible from East Lothian, we consider that this would be an adverse impact by either introducing lighting into a previously dark area of coast, or intensifying the effect of lighting from consented development. We therefore request that the a condition is included in any consent to require that lighting visible from land should be kept to the minimum required; and that the provision of lighting be kept under regular review, and the lighting scheme altered to reduce impacts should it be possible to do so.

Seascape and Visual conclusion

72. We consider the seascape and visual impact to be greater than stated in the EIAR, and that this impact at times of best visibility on East Lothian overall is significant, taking into account the extent of the proposal including its extent along the sea horizon; the sensitivity of the receiving landscape; the area over which there is likely to be a change to the view; the length of time the proposal will be in existence, the different effect in the day and night time, and that the change would generally be perceived as adverse, being a change from a natural to an unnatural view. The combination of the view of this proposal with existing consented development intensifies the view and reduces the more spaced out effect of the existing development.

73. We agree that the amount of time when conditions are such that the proposal is visible lessens the effect. However, the impact on the days when there is the best visibility will be detrimental. In our view, the effect remains significant.

Buildings and objects of historic or archaeological interest

74. The EIAR considers potential for impact on cultural heritage assests including Scheduled Monuments at North Berwick Law, Tantallon Castle and Dunbar Castle. The EIAR states that the magnitude of impact on these receptors is negligible. For all of these monuments, outlook is a key feature, and appreciation of their historic nature, with the original purpose including the ability to look out to sea not casually but with the intent of scanning the sea horizon for the first sign of activity. The view would historically have been of the open sea horizon, with the viewer searching for the smallest sign of change. The proposal will lessen the appreciation of this quality, as it will be harder to imagine a ship appearing on the unbroken horizon.
75. This aspect is only one part of appreciation of the monuments however, albeit an important one. We consider the magnitude of change to be greater than negligible and the overall effect therefore somewhat greater than stated.

Flora and Fauna

76. ELC values its birdlife, including that of the Firth of Forth SPA, the Forth Islands SPA and offshore, and Outer Firth of Forth and St Andrews Bay Complex proposed marine SPA. It also values the marine mammals which are visitors to the East Lothian coast, including those from the nearby Isle of May SAC and further afield Moray Firth SAC. There is legislative provision for the protection of such sites and some such species. NatureScot are the statutory consultee on this matter, and we would support their views.

Mitigation

77. Both the EIA Regulations and the Electricity Act require mitigation for effects on landscape and cultural heritage, and natural beauty and historic or archaeological sites and objects. Other than keeping the lighting scheme under review and reducing it should it become possible to do so, it is not obvious that any mitigation of the actual impact on view is possible. It may be possible to provide interpretation which includes information on the proposal however.

Water Quality

78. We note that there is existing regulatory regimes to control the risks of pollution including pollution of coastal waters which could affect our shores. We would ask that you consider whether conditions are required to make sure that best practice is adhered to in avoiding pollution, and that any costs of remediating a polluting incident do not fall to the council tax payers of East Lothian.

Human Health

79. A helideck is included however there does not appear to be any information about the levels of use or routes of helicopters. Helicopters can be noisy. This is not included in the assessment and we therefore assume that no routes are planned over or near East Lothian. If such flights are planned, we would request further details of this.

Decommissioning

80. We are concerned that provision be made for decommissioning including financial provision against the event that the developers is unable or unwilling to carry this out, to avoid any continuing adverse impact on East Lothian beyond the useful life of the proposal. The Council asks that a conditions is placed on consent to secure this. The Council would prefer that provision for decommissioning retains the option of removing all elements of the project where leaving them in situ could affect East Lothian.

EDF Energy Nuclear Generation Ltd

The Scottish Government
Marine Scotland Licensing Operations Team
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

Sent by email to ms.marinerenewables@gov.scot

21 February 2023

Dear Sir/Madam

Berwick Bank Wind Farm Ltd Marine Licence Applications for Boreholes (00009941) and Offshore Transmission Infrastructure (Part 1 and Part 2) Firth of Forth 00010190/1; and application for consent under Section 36 of the Electricity Act 1989 for the construction and operation of the Berwick Bank Wind Farm (the 'Applications')

I am writing on behalf of EDF Energy Nuclear Generation Limited ("**ENGL**") in response to the above Applications, with the following interests as;
i) owner of the land forming part of the proposed cable landfall location; and
ii) operator of the nearby Torness Nuclear Power Station, which is a nationally significant power generator, with a total supply to the national grid of 1250 MW of low carbon electricity for the equivalent of 2.7m homes in 2020.

ENGL had responded to the consultation undertaken by SSE Renewables/Berwick Bank Wind Farm Ltd (the Applicant) in February 2022 raising a number of important considerations related to the operation of Torness nuclear power station that require to be sufficiently accommodated by the Applications. Having reviewed the Applications and accompanying material including the Berwick Bank Wind Farm Environmental Impact Assessment Report and the Pre-application Consultation Reports, ENGL have found no reference to the response submitted by ENGL to the consultation nor acknowledgement of the important issues raised in the response.

Whilst ENGL continues to discuss issues of concern with the Applicant, including the Heads of Terms for an asset/operations protection agreement, we consider that as matters stand, Marine Scotland must take cognisance of the following outstanding issues. ENGL request that the Applicant provide further information that is required to determine the Applications. We consider that, in the absence of an adequate asset protection agreement being negotiated, Marine Scotland should impose conditions on the Section 36 Consent and Marine Licences requiring appropriate mitigation to be secured before the development goes ahead.

Operational Impacts on the Torness Nuclear Power Station

ENGL needs at all times to be able to comply with the requirements and conditions attached to its Nuclear Site Licence to ensure the security and safe operation of Torness Nuclear Power

Station. There is no acknowledgement, assessment or mitigation and management measures included in the Applications of the following potential impacts of the proposed development on the operation of Torness Nuclear Power Station:

(i) Potential blockages to the cooling water intakes

ENGL requires that the essential cooling water supply to Torness Nuclear Power Station should not be compromised, in order to ensure continued safe operation. On several occasions in recent years, typically during and/or following a storm event coinciding with particular environmental conditions (eg wind direction, tidal state) large volumes of seaweed have become entrained on the drum screens. This can present operational challenges to the station due to the restriction on rates of cooling water abstraction. Large volumes of seaweed ingress have previously caused physical damage to the drum screens and/ or resulted in the reduction of energy generation of one or both reactors. In extreme cases, seaweed ingress has resulted in the complete shut down of the reactor(s).

ENGL considers there to be a risk that the proposed nearshore exploratory boreholes and the installation of the landfall infrastructure and subsea cables immediately to the north of Torness Nuclear Power Station will cause kelp to be dislodged, as well as causing sediment and seaweed disturbance. Predominant currents are northwest to southeast, which means that there is a risk that the dislodged kelp (and possibly sediment and seaweed) will block the cooling water intakes for Torness Nuclear Power Station.

ENGL request that the Applicant:

- Provide further justification for the location of the landfall site and cable routes taking into account the potential risks to the operation of Torness Nuclear Power Station;
- Provide to Marine Scotland a legible plan and CAD file for the red line boundary proposed in the Applications to better understand the proximity of the proposed works to the cooling water intake for Torness Nuclear Power Station;
- Provide to Marine Scotland an indicative plan for the location of landfall infrastructure and subsea cables within the red line boundary proposed in the Applications to better understand the proximity of the proposed works to the cooling water intake;
- Provide to Marine Scotland an indicative plan showing the entry and exit points for proposed Horizontal Directional Drilling for cable laying in the intertidal area;
- Work with ENGL to assess the risk of blockage to the cooling water intakes and consider appropriate mitigation and measures to mitigate the risk of blockage to avoid potential outages to electricity generation;
- Identify and commit to appropriate cable laying methodologies and subsequent maintenance requirements including the harvesting of kelp.

(ii) Impacts on ENGL's onshore operational assets

ENGL have also raised concerns about the potential impact of the Berwick Bank Wind Farm onshore infrastructure on Torness Nuclear Power Station including potential impacts on the access routes to power station, the adjacent utilities and the underground 400kV lines all of which are of key importance to the safe operation of Torness Nuclear Power Station.

As onshore infrastructure is not within the scope of the Applications submitted to Marine Scotland, with the Applicant choosing to obtain permission for the onshore infrastructure by means of a planning application to be determined by East Lothian Council, we request that Marine Scotland and East Lothian Council work together to consider the in combination effects of the onshore and offshore infrastructure on the operation of Torness Nuclear Power Station.

Impact on the decommissioning of the Torness Nuclear Power Station

Torness Nuclear Power Station is expected to cease generation and commence defueling operations in 2028. When decommissioning, ENGL must continue to ensure on-going compliance with the requirements of the Nuclear Site Licence for Torness Nuclear Power Station. ENGL's concerns when it moves to the decommissioning phase of Torness Nuclear Power Station will remain as per those noted above under the heading of "Operational Impacts". ENGL requests that the Applicant has regard to the additional flask movements that will transport spent fuel between the power station and the rail head facility at Skateraw that are planned during the defueling period (2028-2032).

Torness Nuclear Power Station Emergency Planning

As operator of Torness Nuclear Power Station, ENGL has legal responsibilities for emergency planning under the Nuclear Site Licence Conditions attached to the Nuclear Site Licence and the Radiation (Emergency Preparedness and Public Information) Regulations 2019.
EDF Energy has to be sure that any development within the Detailed Emergency Planning Zone (DEPZ) is considered within the off-site emergency plan. The proposed landfall location for the cable route and substation location fall wholly within the Torness DEPZ which extends in a 3km radius from the power station and includes the coastal and marine environment.

It is imperative that the Applicant ensures that measures are put in place to ensure that the needs of construction and operational staff, visitors and residents in these areas have been addressed from an emergency planning point of view. These measures will need to be agreed with East Lothian Council, who have legal responsibility for the Torness Nuclear Power Station Off-Site Emergency plan. ENGL request that the Applicant recognises the need for emergency planning arrangements in the Environmental Impact Assessment Report (Major Accidents Hazards and Disasters assessment), provides evidence of engagement with ENGL's Emergency Planning Team and East Lothian Council, and commits to ensure that the Emergency Plan is updated to include emergency planning arrangements for the Berwick Bank Wind Farm.

Construction Programme and Cumulative Effects

Whilst we understand that the start dates presented in the Applications are indicative, it is likely that construction of Berwick Bank Wind Farm will coincide with the construction phase of Scottish Power's Eastern Link project. Whilst the potential for cumulative effects on Infrastructure and Other Users has been scoped into the Berwick Bank Wind Farm Environmental Impact Assessment Report ENGL, the potential effects on Torness Nuclear Power Station have not been considered.

ENGL request that detailed construction programmes are shared with ENGL and construction management plans, including construction access are shared to ensure the security and safe operation of Torness Nuclear Power Station.

Please acknowledge receipt of this response to consultation.

Yours faithfully

Clare Hennessey MRTPI
Consents and Statutory Engagement Manager
ENGL

Fife Council

Marine Scotland
Scottish Government
Marine Laboratory
375 Victoria Road
Aberdeen

Planning Services

Natasha Cockburn

development.central@fife.gov.uk

Your Ref:
Our Ref: 22/04310/CON

Date 1st February 2023

Dear Sir/Madam

Application No: **22/04310/CON**
Proposal: **Application for consent under Section 36 of the Electricity Act 1989, Marine Licences under Part 4 of the Marine (Scotland) Act 2010 and Marine and Coastal Access Act 2009 to construct and operate Berwick Bank Offshore Windfarm, off the coast of East Lothian and the Scottish Borders**
Address: **Scottish Government Consultation Fife**

Having reviewed the information provided I can confirm that Fife Council has no comments to make on the proposal.

Yours sincerely

Natasha Cockburn
Planner, Development Management

Forth Ports Limited

From:	Carol Forman
To:	MS Marine Renewables
Cc:	Pamela Smyth
Subject:	RE: Berwick Bank Offshore Wind Farm - Section 36 and Marine Licence Applications - Consultation - Response Requested by 21 February 2023
Date:	04 January 2023 11:11:55
Attachments:	image001.png

Hi Emma

We would comment as follows:-

"Consideration should be given into how traffic will be managed in the approaches to and from the Forth and Tay along with transiting traffic for the duration of the construction period and once established, taking account of the cumulative effect of other developments in this area. Potential mitigation could include undertaking a Navigation Risk assessment, establishing a traffic management plan and utilising control methods such as an offshore Vessel Traffic Services (VTS). "

The Applicant will require a Works Licence from Forth Ports Limited prior to any works being undertaken. The applicant should also discuss the requirement or otherwise of a Notice to Mariners with Forth Ports. If required, the applicant should supply the required information to us to allow us to issue the Notice to the required distribution.

Kind regards.
Carol

Carol Forman | In-house Paralegal | LSS Accredited Paralegal | Forth Ports Limited
Head Office | 1 Prince of Wales Dock | Edinburgh | EH6 7DX
T: 0131 555 8721 | M: [Redacted] | https://forthports.co.uk

Historic Environment Scotland

HISTORIC ENVIRONMENT SCOTLAND | ÀRAINNEACHD EACHDRAIDHEIL ALBA

By email to:
MS.MarineRenewables@gov.scot

Marine Scotland (Marine Renewables)
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

Longmore House
Salisbury Place
Edinburgh
EH9 1SH

Enquiry Line: 0131-668-8716
HMConsultations@hes.scot

Our case ID: 300044396

20 February 2023

Dear Marine Scotland

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017
Berwick Bank Offshore Wind Farm
Section 36 and Marine Licence Applications

Thank you for your consultation which we received on 22 December 2022. We have considered it and its accompanying EIA Report in our role as a consultee under the terms of the above regulations and for our historic environment remit. Our remit is World Heritage Sites, scheduled monuments and their setting, category A-listed buildings and their setting, gardens and designed landscapes (GDLs) and battlefields in their respective inventories and Historic Marine Protected Areas (HMPAs). In this case, our advice also includes matters relating to marine archaeology outwith the scope of the terrestrial planning system.

Our Advice

We do not wish to object to the application. Our detailed comments on the application and EIA Report are contained in the annex to this covering letter.

Our comments should be treated as a material consideration, and this advice should be taken into account in your decision making. Our view is that the proposals do not raise historic environment issues of national interest and therefore we do not object. Our decision not to object should not be taken as our support for the proposals. This application should be determined in accordance with national and local policy on development affecting the historic environment, together with related policy guidance.

Further Information

This response applies to the application currently proposed. An amended scheme may require another consultation with us.

Guidance about national policy can be found in our 'Managing Change in the Historic Environment' series available online at www.historicenvironment.scot/advice-and-support/planning-and-guidance/legislation-and-guidance/managing-change-in-the-

historic-environment-guidance-notes/. Technical advice is available through our Technical Conservation website at www.engineshed.org.

Please contact us if you have any questions about this response. The officer managing this case is Victoria Clements who can be contacted by phone on 0131 668 8730 or by email on Victoria.Clements@hes.scot.

Yours faithfully

Historic Environment Scotland

ANNEX

Proposed Development
We understand that the proposed development would consist of up to 307 wind turbines up to a maximum blade tip height of 355m, plus associated substructures and seabed foundations, inter-array cables and scour protection. The Offshore Transmission Infrastructure (OfTI) will include up to 10 offshore substation platforms (OSPs), OSP interconnector cables, and up to 8 offshore export cable circuits located within the offshore export cable corridor.

Background
We have previously provided advice on this proposed development at scoping and pre-application stages. In November 2021 we agreed that assessment of impacts on marine archaeology could be scoped out of assessment in the EIA Report as the mitigation proposed is adequate to ensure that there would not be significant effects on our interest.

We have reviewed the Marine Archaeological Technical Report (MART), the Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD) submitted for this scheme at pre-application stage (and included in Volume 4 of the EIA Report). We are content with these documents.

Our interest
As noted above, we are content that the assessment of impacts on marine archaeology has been scoped out of the EIA Report.

<u>Terrestrial assets</u>
We are content that as a result of the offshore works there will not be any direct physical impacts on nationally important designated historic environment assets.

We have also considered the potential for impacts on the setting of terrestrial assets from the proposed development. We are satisfied with the list of assets within our remit identified for detailed assessment at Table 16.8 and assessed in section 16.11 of Chapter 16. We are content to agree with the conclusions of the assessment for the scheduled monuments and category A listed buildings identified. We are also satisfied with the conclusions of the cumulative assessment.

We are content that the proposed development will not have significant adverse effects on the setting of nationally important designated historic environment assets within our remit and will not raise issues of national interest.

EIA Report
We are content that sufficient information has been supplied in the EIA Report for us to come to a view on the application. We are content that the methodology used in the

assessment is appropriate and we welcome the references to the EIA Handbook and our Managing Change Guidance Note on Setting. We welcome the provision of specific visualisations for our interests which assisted with our assessment of effects.

We consider that the assessment mostly provides an appropriate level of detail and includes useful consideration of setting, including such issues as key views of and from historic environment assets, as well as wider landscape character.

Our position
We do not object to the proposed development. The effects on the setting of the category A listed buildings and scheduled monuments in the surrounding areas would not be significant and would not raise issues of national interest. We are therefore content that overall the proposals would not raise issues of national interest for our remit.

Historic Environment Scotland
20 February 2023

Marine Analytical Unit

marinescotland

Berwick Bank Offshore Wind Farm

Marine Analytical Unit Response

The Berwick Bank Wind Farm Environmental Impact Assessment includes descriptions of a range of potential impacts. This response focuses only on the assessment of social and economic impacts.

Assessment of Impacts

GVA and Employment

The assessment estimates the expected direct, indirect and induced GVA and employment impact of the development. We welcome that this has been assessed for each stage of the development and across different spatial levels. We also welcome that the analysis includes a range of scenarios to reflect different procurement decisions in relation to the competitiveness of the supply chain and where impacts may arise.

To add further depth to the employment analysis, additional information on the types of jobs expected to be created (e.g. part-time, full-time, skilled) beyond FTE and how these compare to the existing jobs in the study area could have been provided.

Social impacts
Scoping opinion: "The Scottish Ministers advise that the Developer should undertake a full socio-economic impact assessment and in completing this, direct the Developer to the principles outlined in the advice from MAU."

The principles outlined by MAU included recommendations to assess a broad range of impacts and to go beyond the narrow definition of socio-economic impacts included in the scoping report. The EIA is certainly more detailed than the scoping report, but the impacts considered are still quite narrow and economic in focus.

Scoping opinion: "In addition, the Developer must also consider the relationship of the potential impacts on visual amenity and cultural heritage with the impact on recreation and tourism in the areas and therefore socio-economics. The Scottish Ministers also advise that impacts to the sale of fish and the supply chain must be considered and assessed in the EIA Report, as supported by the representation from SFF and MSS January advice. These impacts should be considered along with the wider assessment of socioeconomic implications recommended by the MAU."

The EIA report includes the discussion of socio-economic impacts in the chapter on Inter-Related Effects, but does not synthesize information from the separate chapters (socio-economic impacts, tourism, commercial fisheries, seascape, cultural heritage) into the discussion of what the potential changes might bring to communities on the ground. The

MAU would welcome a more comprehensive mapping out of how the socio-economic changes concerning separate receptors are interrelated.

Data collection

Scoping opinion: "With regards to the baseline environment, the Developer proposes to rely on a desktop study and not to undertake any site specific surveys. The Scottish Ministers advise that this is not sufficient and primary data must be collected, including engagement with communities and local industries. In addition, this must include the collection of baseline social data which must consider a wider range of potential impacts than described in the Scoping Report."

In table 18.5 the developers respond that: "'Stakeholder consultation was undertaken across the identified local study areas consultation and with national and regional stakeholders in addition to desk based analysis of secondary sources."

The EIA report describes various engagement activities, but there is no evidence to suggest that primary data was collected during these events. There is some information provided about stakeholder engagement and consultation in the EIA and in the Pre-Application Consultation (PAC) Report (Pre-Application Consultation Report: (berwickbank-eia.com) and, although these show that issues have been raised by stakeholders, the methods used in these activities are not robust enough to be considered data collection. For example, there is no consideration of sampling, there is no information about the people who responded and where they are from, and the aim of the events was to share information rather than to collect information.

In order to understand whether potential social impacts have been fully and adequately considered by the Berwick Bank OWF development, the MAU would require information on what primary data has been collected, the social research methods that have been used to collect this data, and how this data has been analysed. This information is missing from the EIA report. In the absence of robust primary data, some claims regarding local communities' reactions to the development appear anecdotal.

For example in a section about potential impacts on accommodation and housing the following statement is made: "Multiple stakeholders indicated that there had been no adverse impacts as a result of previous similar projects with temporary contractor workforces requiring short term accommodation." We do not know how many people said this, who they were, where they were based or how they were consulted on this topic.

Consultation and engagement

We are pleased to see that the developers have appointed a Fisheries Liaison Officer and a Stakeholder Engagement Manager.

The stakeholder engagement outlined in the information on stakeholder engagement and consultation is presented in a way that makes it very difficult to piece together what has taken place. There are two stakeholder engagement chapters and the PAC report. The PAC

report is not presented alongside the rest of the application, but had to be searched for separately and was difficult to find.

The areas that were included in the stakeholder engagement and consultation do not map fully onto the areas of impact that form the basis of the analysis. There is a strong focus on East Lothian, Fife, Angus and the Borders. The information gathered during stakeholder engagement cannot therefore be used to fully inform the assessment of impacts. If social impacts are generated in the epicentres identified, there will have been no engagement with these communities.

Offshore and onshore impacts

Scoping opinion: "The Scottish Ministers advise, for the avoidance of doubt, that the socioeconomic impacts from offshore and onshore activities and structures must be considered together to ensure links and interactions can be identified."

The MAU notes that for the assessment of social impacts, offshore and onshore parts of the development have not been considered together in the EIA report. This results in a partial picture of how local communities will be affected by the development, and is not satisfactory.

In the PAC report, stakeholder engagement covers the onshore and offshore elements. This report shows that stakeholders raised a number of concerns relating to onshore elements, and these have not been assessed in the EIA.

Assigning significance

In section 18.8.2, the criteria for assigning significance are set out. Significance, in this assessment, is based on Magnitude of impact (Table 18.23) and Sensitivity of the receptor (Table 18.24).

Sensitivity of receptor is defined in relation to geographical scale. So that Very high sensitivity relates to an international receptor, High is national, Medium, and low are regional and negligible sensitivity relates to local receptors.

The matrix for assigning significance will also automatically downgrade social impacts. It is unlikely that impacts at a national scale will be of high magnitude and while impacts may be of a greater magnitude at a local level they will, by definition, be of 'negligible' sensitivity.

Furthermore, as mentioned previously, no primary data was collected in this assessment and the developers have stated that data sets are only available at local authority level. This means that 'local' impacts are not being assessed, and so there is no way of determining whether they are significant or not.

Using geographic scale to define sensitivity may be appropriate for environmental impacts, but for social impacts there is a risk that impacts are downgraded erroneously. As social impacts involve people, we would also recommend that those affected have a say in the significance of an impact.

Maritime & Coastguard Agency

Maritime and Coastguard Agency
UK Technical Services Navigation
105 Commercial Road
Southampton
SO15 1EG

www.gov.uk/mca
17 February 2023

Marine Scotland - Marine Planning & Policy
Scottish Government, Marine Laboratory
375 Victoria Road
Aberdeen, AB11 9DB
By email to: MS.MarineRenewables@gov.scot

Dear Sir/Madam

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 (AS AMENDED), MARINE LICENCES UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE BERWICK BANK OFFSHORE WINDFARM, OFF THE COAST OF EAST LOTHIAN AND THE SCOTTISH BORDERS.

Thank you for the opportunity to comment on the application for consent under Section 36 of the Electricity Act 1989 and marine licence under the Marine (Scotland) Act 2010 for the Berwick Bank offshore wind farm. The MCA's remit for Offshore Renewable Energy Installations (OREIs) is to ensure that the safety of navigation is preserved, and our Search and Rescue capability is maintained, whilst progress is made towards government targets for renewable energy. The Navigation Risk Assessment (NRA) and the shipping and navigation elements of the Environmental Impact Assessment Report have been reviewed and we would like to comment as follows:

Navigation Risk Assessment
Anatec Limited has undertaken a detailed Navigation Risk Assessment (NRA) in accordance with MCA guidance (MGN 654) and NRA risk assessment methodology. We are satisfied that appropriate traffic data has been collected in accordance with MGN 654, which includes two 14-day marine vessel traffic survey in winter of 2021 and summer of 2022, supported by 12-months of AIS data from 2019. A completed MGN 654 Checklist has been provided as part of the NRA, and we are content the recommended NRA process has been followed.

We recognise that our concerns raised during the first hazard workshop on the western boundary have been considered and that an adjustment has been made to increase the sea space between the array area and neighbouring Inch Cape wind farm. MCA is content with the navigation corridor safety case in Chapter 19 of the NRA. It should be recognised than for route 11 (in reference Figure 15.11) at the post wind farm stage, there would be a more direct route south of Bell Rock and Inch Cape, and through the corridor between Seagreen and Berwick Bank offshore wind farms.

The list of embedded mitigation measures in Table 17.1 of the NRA is appropriate and MCA's comments on the draft post-consent plans are below. It is noted from Tables 18.1 and 19.2 that no additional mitigation measures are proposed.

Within the hazard log in Table B.1, it is noted that the consequence scores for the realistic most likely scenario for collision and allision hazards have been assessed as a score of 1 - Negligible (no perceptible impact). It is not felt these are realistic outcomes of a collision or allision and the assigned scores are underestimated. However, it is unlikely in this instance that more realistic scores would have a significant effect on the individual risk tolerabilities for the relevant hazards.

There are references to obsolete MCA guidance, specifically MGN 371 and MGN 543, that has been superseded by MGN 654. For example, within Table 13.2 it states that X-band radar interference is intolerable at 0.25nm whereas in the current guidance it is 0.5nm. The applicant is advised to refer to current guidance.

Emergency Response and Search and Rescue
A SAR checklist based on the requirements in MGN 654 Annex 5 will need to be completed in agreement with MCA before construction starts. This will include the requirement for an approved Emergency Response Co-operation Plan (ERCOP) and will be incorporated as a condition of the Marine Licence.

During SAR discussions, particular consideration will need to be given to the implications of the site size and location. Attention should be paid to the level of radar surveillance, AIS and shore-based VHF radio coverage and give due consideration for appropriate mitigation such as radar, AIS receivers and in-field, Marine Band VHF radio communications aerial(s) (VHF voice with Digital Selective Calling (DSC)) that can cover the entire wind farm sites and their surrounding areas.

Specific comments on the Navigation Risk Assessment are as follows:

- 2.4 – There may be more benefit in referring to more recent helicopter trials and documents written by the MCA in 2019, titled: “MCA report following aviation trials and exercises in relation to offshore windfarms” and “MCA report following aviation trials at Hornsea Project 1 windfarm”. Some issues identified in the 2005 paper are relevant today, but there are different systems and aircraft now and windfarms are obviously much larger and further offshore.
- 9.3 – ‘Her Majesty’s Coastguard’ needs to be updated to ‘His Majesty’s Coastguard’ (or just HM Coastguard).
- 9.4 – Not all the array area would be classed within A1 – some of the site is in excess of 30-40NM from a coastguard VHF aerial site.
- 9.6.1 – While it is recognised that Table 9.1 is limited to collision and allision incidents and that only incidents that have been formally reported are captured, this does omit a potentially significant number of occasions requiring a SAR response.
- 9.6.1 – There was a pleasure vessel that broke down and drifted into a turbine at Gunfleet Sands in June 2022 and lifeboats were sent to assist. We would recommend that an allision/collision per windfarm would be a more accurate representation than per turbine, since it is the presence of the windfarm which the NRA is addressing.
- 9.6.3 – While it is recognised that Table 9.2 is limited to incidents that wind farm vessels provided assistance, the NRA does not include details of incidents of windfarm vessels such as break downs or vessel fires, of which there have been many. And while there is reference to “additional incidents” in 9.6.3, it is noted that these “typically involve an accident to person…but does not affect the operation of the vessel involved”, there is still an impact to emergency response to which this chapter (9) is focussed.
- 13.1 – It would be reasonable to note within the NRA that the MCA has repeatedly raised concerns about the impact of larger turbines on radio reception, with anecdotal evidence

of poor reception. This is why the MCA is asking for radio surveys to be conducted before and after construction. It should also be noted that the MarCom WG Report (PIANC) no 161 of 2018 recognises the likely impact on VHF and recommending studies carried out by new windfarms on the implications for radio-communications systems (and AIS). There is also mention of the requirement for extra VHF station offshore, which the MCA supports.

- Table 18.1 Hazard Log (p.202) – This hazard touches on increased numbers of incidents and reducing access where frequency of occurrence was assessed to be Remote i.e. a SAR response to the windfarm once every 10 to 100 years. A reasonable expectation is that a windfarm of this size would have an incident at least annually if not more frequent.
- 20.2 – Incident reporting is welcomed. We request that consideration is given to working with G+ and the Offshore Renewable Energy Emergency Forum (OREEF) in regard to reviews and participation of exercises and incidents.

Layout Design
The turbine layout design must be compliant with MGN 654 and it will require MCA and Northern Lighthouse Board (NLB) approval prior to construction to minimise the risks to surface vessels, including rescue boats, and search and rescue aircraft operating within the site. MCA will seek to ensure all structures are aligned in straight rows and columns with a minimum of two lines of orientation.

Marking and Lighting
MCA will seek to ensure the turbine numbering system follows a ‘spreadsheet’ principle and is consistent with other windfarms in the UK. All lighting and marking arrangements will need to be agreed with MCA and the NLB. The MCA requires all aviation lighting to be visible 360° and compatible with night vision imaging systems, as detailed in CAP 764 and MGN 654 Annex 5.

Construction scenarios
We would expect to see some form of linear progression of the construction programme avoiding disparate construction sites across the development area, and the consent needs to include the requirement for an agreed construction plan to be in place ahead of any works commencing.

Under-Keel Clearance
There are several references to the requirement for cable protection not reducing under-keel clearance by more than 5%. It should be noted that water depths should not be reduced by more than 5%, in relation to charted depths. However, I note in the list of embedded risk controls in Table 16 of the NRA it refers to water depths referenced from Chart Datum.

Hydrographic Surveys
MGN 654 requires that hydrographic surveys should fulfil the requirements of the International Hydrographic Organisation (IHO) Order 1a standard, with the final data supplied as a digital full density data set, and survey report to the MCA Hydrography Manager and the UKHO. Further information can be found in MGN 654 Annex 4 supporting document titled ‘Hydrographic Guidelines for Offshore Developers’, available on our website: https://www.gov.uk/guidance/offshore-renewable-energy-installations-impact-on-shipping. This includes surveys during the pre-construction, post-construction and post-decommissioning stages.

Cable Routes
Export cable routes, cable burial protection index and cable protection are issues that are yet to be fully developed. However due cognisance needs to address cable burial and protection, particularly close to shore where impacts on navigable water depth may become significant. Any consented

cable protection works must ensure existing and future safe navigation is not compromised. The MCA would accept a maximum of 5% reduction in surrounding depth referenced to Chart Datum.

Should High Voltage Direct Current (HVDC) transmission infrastructure be used there is a potential impact on ships compasses from the electro-magnetic field generated. A pre-construction compass deviation study will be required on the expected electro-magnetic field, and we would be willing to accept a three-degree deviation for 95% of the cable route. For the remaining 5% of the cable route no more than five-degree deviation in water depths of 5m and deeper will be attained. If this requirement cannot be met, further mitigation measures may be required including a post installation deviation survey of the cable route. This data must then be provided to the MCA and UKHO, as a precautionary notation may be required on the appropriate Admiralty Charts regarding possible magnetic anomalies along the cable route.

Safety Zones
The requirement and use of safety zones is noted, and MCA will comment on the application to Scottish Ministers once submitted. Safety zones during the construction, maintenance and decommissioning phases are supported. A detailed justification would be required for a 50m operational safety zone, with significant evidence from the construction phase in addition to the baseline NRA required supporting the case. Safety zones triggered by a Service Operation Vessel connecting to a wind turbine will not be supported.

Management Plans
Recognising MCA will have the opportunity to provide further comments on the management plans during the post-consent stage, we have the following comments on the proposed plans:

1. Appendix 22, Annex C – Outline Scour Protection Plan
    - In case of exposure of cables on or above the seabed, the applicant must within three days following identification of a potential cable exposure, notify mariners and inform Kingfisher Information Service of the location and extent of exposure. Copies of all notices must be provided to the Marine Scotland, MCA, NLB, and the UKHO within 5 days.
    - Proposals should include monitoring offshore cables including cable protection during the operational lifetime of the authorised scheme which includes a risk based approach to the management of unburied or shallow buried cables.

2. Appendix 25 – Navigation Safety Plan (NSP)
    - 2.8 – the applicant must notify MCA, NLB, the Kingfisher Information Service of Seafish and the UKHO within 24 hours following the applicant becoming aware of any such damage, destruction or decay of the Proposed Development.
    - 4.5 – ‘as built’ positions of all turbines and cables must be provided to MCA, UKHO and NLB and should be provided as latitude and longitude coordinates of the centre point of the location and provided as Geographical Information System data referenced to WGS84 datum.

3. Appendix 27 – Outline Lighting and Marking Plan
    - As per MGN 654 paragraph 6.4, the wind turbines must have marker boards showing identification markings that are readable by an observer stationed three metres above sea level at a distance of at least 150m. Each board or plate must be illuminated by a hooded or baffled low intensity light at night or restricted visibility.

Conclusion
The reports provide a comprehensive overview of the risk and the comments detailed above are to highlight areas of concern, and items to be addressed by the applicant in consultation with the MCA to ensure the risk to the safety of navigation and the impact on SAR capability remains low. Subject to the applicant meeting requirements addressed in this letter, and meeting licence conditions which will be provided to Marine Scotland, it provides a cautious acceptance of the application for consent.

Yours faithfully,

[Redacted]

[Redacted]

Nick Salter
Offshore Renewables Lead
UK Technical Services Navigation

Peter Lowson
Offshore Energy Liaison Officer
HM Coastguard Governance, Policy, Standards and International

Marine Management Organisation

From:	SM-MMO-SH - MFA Marine Consents (MMO)
To:	MS Marine Renewables
Subject:	RE: Berwick Bank Offshore Wind Farm - Section 36 and Marine Licence Applications - Consultation - Response Requested by 21 February 2023
Date:	22 December 2022 11:46:54
Attachments:	image002.png image003.png

Marine Licensing, Wildlife Licences and other permissions

Dear Sir/Madam,

Please be aware that any works within the Marine area require a licence from the Marine Management Organisation. It is down to the applicant themselves to take the necessary steps to ascertain whether their works will fall below the Mean High Water Springs mark.

Response to your consultation

The Marine Management Organisation (MMO) is a non-departmental public body responsible for the management of England's marine area on behalf of the UK government. The MMO's delivery functions are; marine planning, marine licensing, wildlife licensing and enforcement, marine protected area management, marine emergencies, fisheries management and issuing European grants.

Marine Licensing

Works activities taking place below the mean high water mark may require a marine licence in accordance with the Marine and Coastal Access Act (MCAA) 2009.

Such activities include the construction, alteration or improvement of any works, dredging, or a deposit or removal of a substance or object below the mean high water springs mark or in any tidal river to the extent of the tidal influence.

Applicants should be directed to the MMO's online portal to register for an application for marine licence

https://www.gov.uk/guidance/make-a-marine-licence-application

You can also apply to the MMO for consent under the Electricity Act 1989 (as amended) for offshore generating stations between 1 and 100 megawatts in English waters.

The MMO is also the authority responsible for processing and determining Harbour Orders in England, together with granting consent under various local Acts and orders regarding harbours.

A wildlife licence is also required for activities that that would affect a UK or European protected marine species.

The MMO is a signatory to the coastal concordat and operates in accordance with its principles. Should the activities subject to planning permission meet the above

criteria then the applicant should be directed to the follow pages: check if you need a marine licence and asked to quote the following information on any resultant marine licence application:

- local planning authority name,
- planning officer name and contact details,
- planning application reference.

Following submission of a marine licence application a case team will be in touch with the relevant planning officer to discuss next steps.

Environmental Impact Assessment

With respect to projects that require a marine licence the EIA Directive (codified in Directive 2011/92/EU) is transposed into UK law by the Marine Works (Environmental Impact Assessment) Regulations 2007 (the MWR), as amended. Before a marine licence can be granted for projects that require EIA, MMO must ensure that applications for a marine licence are compliant with the MWR.

In cases where a project requires both a marine licence and terrestrial planning permission, both the MWR and The Town and Country Planning (Environmental Impact Assessment) Regulations http://www.legislation.gov.uk/uksi/2017/571/contents/made may be applicable.

If this consultation request relates to a project capable of falling within either set of EIA regulations, then it is advised that the applicant submit a request directly to the MMO to ensure any requirements under the MWR are considered adequately at the following link

https://www.gov.uk/guidance/make-a-marine-licence-application

Marine Planning

Under the Marine and Coastal Access Act 2009 ch.4, 58, public authorities must make decisions in accordance with marine policy documents and if it takes a decision that is against these policies it must state its reasons. MMO as such are responsible for implementing the relevant Marine Plans for their area, through existing regulatory and decision-making processes.

Marine plans will inform and guide decision makers on development in marine and coastal areas. Proposals should conform with all relevant policies, taking account of economic, environmental and social considerations. Marine plans are a statutory consideration for public authorities with decision making functions.

At its landward extent, a marine plan will apply up to the mean high water springs mark, which includes the tidal extent of any rivers. As marine plan boundaries extend up to the level of the mean high water spring tides mark, there will be an overlap with terrestrial plans which generally extend to the mean low water springs mark.

A map showing how England's waters have been split into 6 marine plan areas is available on our website. For further information on how to apply the marine plans

please visit our Explore Marine Plans service.

Planning documents for areas with a coastal influence may wish to make reference to the MMO's licensing requirements and any relevant marine plans to ensure that necessary regulations are adhered to. All public authorities taking authorisation or enforcement decisions that affect or might affect the UK marine area must do so in accordance with the Marine and Coastal Access Act and the UK Marine Policy Statement unless relevant considerations indicate otherwise. Local authorities may also wish to refer to our online guidance and the Planning Advisory Service soundness self-assessment checklist. If you wish to contact your local marine planning officer you can find their details on our gov.uk page.

Minerals and waste plans and local aggregate assessments

If you are consulting on a mineral/waste plan or local aggregate assessment, the MMO recommend reference to marine aggregates is included and reference to be made to the documents below;

- The Marine Policy Statement (MPS), section 3.5 which highlights the importance of marine aggregates and its supply to England's (and the UK) construction industry.
- The National Planning Policy Framework (NPPF) which sets out policies for national (England) construction minerals supply.
- The Managed Aggregate Supply System (MASS) which includes specific references to the role of marine aggregates in the wider portfolio of supply.
- The National and regional guidelines for aggregates provision in England 2005-2020 predict likely aggregate demand over this period including marine supply.

The NPPF informed MASS guidance requires local mineral planning authorities to prepare Local Aggregate Assessments, these assessments have to consider the opportunities and constraints of all mineral supplies into their planning regions – including marine. This means that even land-locked counties, may have to consider the role that marine sourced supplies (delivered by rail or river) play – particularly where land based resources are becoming increasingly constrained.

If you require further guidance on the Marine Licencing process, please follow the link https://www.gov.uk/topic/planning-development/marine-licences

Regards
Andy

Andy Davis| Administration Officer Business Support Team | Marine Management Organisation

Lancaster House, Hampshire Court, Newcastle Business Park, Newcastle upon Tyne, NE4 7YH
Andrew.Davis@marinemanagement.org.uk | Tel: +44 02080265093 Mob: [Redacted]

Website | Twitter | Facebook | Linkedin | Blog |Instagram | Flickr | YouTube | Google+ | Pinterest

Our MMO Values: Together we are **Accountable, Innovative**, **Engaging** and **Inclusive**

Ministry of Defence

Defence Infrastructure Organisation

Teena Oulaghan
Safeguarding Manager
Ministry of Defence
Safeguarding
Defence Infrastructure Organisation
St George's House
DMS Whittington
Lichfield, Staffordshire
WS14 9PY
United Kingdom

Telephone: [Redacted]
E-mail: Teena.oulaghan100@mod.gov.uk

Application Ref: S36

Our Reference: DIO10049075

Marine Scotland
Marine Planning & Policy
Scottish Government
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

21 February 2023

Dear Sir/Madam,

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 (AS AMENDED), MARINE LICENCES UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE BERWICK BANK OFFSHORE WINDFARM, OFF THE COAST OF EAST LOTHIAN AND THE SCOTTISH BORDERS.

Thank you for consulting the Ministry of Defence (MOD) in relation to the Section 36 application and Marine Licences through your communication dated 22 December 2022.

The Defence Infrastructure Organisation (DIO) Safeguarding Team represents the MOD as a consultee in UK planning and energy consenting systems to ensure that development does not compromise or degrade the operation of defence sites such as aerodromes, explosives storage sites, air weapon ranges, and technical sites or training resources such as the Military Low Flying System.

I write to advise the safeguarding position of the MOD in relation to the above applications to construct and operate the Berwick Bank Offshore Wind Farm.

This scheme will comprise of up to 307 wind turbines, with a maximum height to blade tip of up to 355 metres above Lowest Astronomical Tide (LAT) that will be located in the outer Firth of Forth, approximately 47.6km offshore of the East Lothian coastline and 37.8km from the Scottish Borders coastline at St. Abbs. In addition to the turbine structures there will be up to ten Offshore Substation Platforms (OSPs)/Offshore converter station platforms. These OSPs/Offshore converter station platforms will be connected via interconnector cables. Up to eight offshore export cables will then connect the OSPs/Offshore connector station platforms to the landfall on the East Lothian coast, at Skateraw harbour. The onshore components are subject to a separate application for planning permission from East Lothian Council.

The principal concerns of the MOD with respect to this proposed wind farm relate to the impact of the development on the operation and capability of air defence radar systems, air traffic radar systems, and the potential to create a physical obstruction to air traffic movements.

At this time the MOD must object to the proposed development on the basis that the scheme would have a significant and detrimental impact on the effective operation and capability of air defence radars deployed at Remote Radar Head (RRH) Brizlee Wood and RRH Buchan, and an air traffic control radar at Leuchars Station.

Air Defence (AD) radar

The proposed turbines would be located approximately 81.5km from, detectable by, and will cause unacceptable interference to the AD radar at RRH Brizlee Wood.

The proposed turbines would be located approximately 109.8km from, detectable by, and will cause unacceptable interference to the AD radar at RRH Buchan.

Wind turbines have been shown to have detrimental effects on the operation of radar. These include the desensitisation of radar in the vicinity of the turbines, and the creation of "false" aircraft returns. The probability of the radar detecting aircraft flying over or in the vicinity of the turbines would be reduced, hence turbine proliferation within a specific locality can result in unacceptable degradation of the radar's operational integrity. This would reduce the RAF's ability to detect and deter aircraft in United Kingdom sovereign airspace, thereby preventing it from effectively performing its primary function of Air Defence of the United Kingdom.

Our assessments have determined that, when operational, the proposed wind farm will cause unacceptable and unmanageable interference to the effective operation of air defence radar deployed at RRH Brizlee Wood and RRH Buchan.

The need to mitigate the impacts of the proposed development upon the effective operation of RRH Brizlee Wood and RRH Buchan has been recognised by the applicant and are set out in Chapter 14 of the Offshore Environmental Impact Assessment Report (October 2022). Whilst the applicant has indicated the need to mitigate these impacts, to date no mitigation scheme has been submitted for assessment.

Therefore, on the basis of the information provided, and until a suitable mitigation scheme has been submitted, assessed, and accepted, the MOD must object to this proposal due to the impact it will have on the AD radars at both RRH Brizlee Wood and RRH Buchan.

Air Traffic Control (ATC) Radar

The turbines will be approximately 57.7km from, detectable by, and will cause unacceptable interference to the ATC radar serving Leuchars Station.

Wind turbines have been shown to have detrimental effects on the performance of Primary Surveillance Radars. These effects include the desensitisation of radar in the vicinity of the turbines, shadowing and the creation of "unwanted" aircraft returns which air traffic controllers must treat as aircraft returns. The desensitisation of radar could result in aircraft not being detected by the radar and therefore not presented to air traffic controllers. Controllers use the radar to separate and sequence both military and civilian aircraft, and in busy uncontrolled airspace radar is the only sure way to do this safely. Maintaining situational awareness of all aircraft movements within the airspace is crucial to achieving a safe and efficient air traffic service, and the integrity of radar data is central to this process. The creation of "unwanted" returns displayed on the radar leads to increased workload for both controllers and aircrews. Furthermore, real aircraft returns can be obscured by a turbine's radar return, making the tracking of both conflicting unknown aircraft and the controllers' own traffic much more difficult.

Our assessments have determined that, when operational, the proposed wind farm will cause unacceptable and unmanageable interference to the effective operation of the ATC radar deployed at Leuchars Station.

The need to mitigate the impacts of the proposed development upon the effective operation of Leuchars Station has been recognised by the applicant and are set out in Chapter 14 of the Offshore Environmental Impact Assessment Report (October 2022). Whilst the applicant has indicated the need to mitigate these impacts, to date no mitigation scheme has been submitted for assessment.

Therefore, on the basis of the information provided, and until a suitable mitigation scheme has been submitted, assessed, and accepted, the MOD must object to this proposal due to the impact it will have on the ATC radar at Leuchars Station.

Physical Obstruction

In this case the development falls within Low Flying Areas 14 and 16 (LFA 14 and LFA 16). Within these areas fixed wing aircraft may operate as low as 250 feet or 76.2 metres above ground level to conduct low level flight training. The addition of turbines in this location would introduce a physical obstruction to low flying aircraft operating in the area.

In the event that the applicant is able to overcome the objections listed above, MOD would require that conditions are added to any consent issued requiring the submission, approval and implementation of an aviation lighting scheme, and that sufficient data is submitted to ensure that structures can be accurately charted to allow deconfliction. The applicant has acknowledged the MOD requirement for MOD accredited aviation safety lighting in Chapter 14, (Table 14.4) of the Offshore Environmental Impact Assessment Report (October 2022).

As this development includes structures that exceed a height of 60m above Highest Astronomical Tide (HAT) it would be subject to the lighting requirements set out in the Air Navigation Order 2016. In addition to any CAA requirements, the MOD will require the submission, approval, and implementation of an aviation safety lighting specification that details the installation of MOD accredited aviation safety lighting.

With regard to the remainder of the proposed development including the interarray cables and the export cables which will make landfall at Skateraw, these elements would not pass through or occupy any MOD statutory safeguarding zones.

For the avoidance of any doubt, MOD objects to the proposal on the grounds of the unacceptable impact that the development would have on:

- air defence radar systems sited at RRH Brizlee Wood and RRH Buchan; and
- air traffic control radar systems sited at Leuchars Station.

I trust this adequately explains our position on this matter.

Yours faithfully,

[Redacted]

Teena Oulaghan
Safeguarding Manager

Marine Scotland Science

marinescotland science

Scottish Government
Riaghaltas na h-Alba
gov.scot

T: +44 (0)131 244 2500
E: MSS_Advice@gov.scot

Emma Lees
Marine Scotland Licensing Operations Team
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

23 February 2022

Berwick Bank Offshore Wind Farm - Section 36 Consent and Marine Licence Applications - Consultation

Marine Scotland Science (MSS) have reviewed the request from MS-LOT and provide the following advice.

Commercial fisheries

MSS are content that all impacts to commercial fisheries have been scoped in and adequately assessed.

MSS note that the developer has not fully committed to carrying out a cable over-trawl survey at this stage. Given the prevalence of mobile fishing in the export cable corridor and parts of the windfarm area, MSS advise that a cable over-trawl survey is carried out to test the safe use of fishing gear and to minimise, as far as reasonably practicable, the risks of fishing gear snagging on cables.

If consent is granted for this offshore wind farm and the proposed total of 307 turbines is built out, this will be Scotland's largest offshore wind farm to date. The proposed offshore wind farm development area is in the vicinity of other windfarms that are consented, constructed or under construction (Seagreen, Neart na Gaoithe and Inch Cape) which is a large spatial area for potential conflict between offshore wind farms and commercial fisheries. Therefore, it will be important to monitor any impacts to commercial fisheries. MSS advise that commercial fisheries monitoring is carried out pre-construction, during construction and post-construction of the wind farm to validate the EIA predictions of minor or negligible impact to commercial fisheries. This could be a desk-based survey of fisheries data, for example to identify any potential changes in commercial fishing distribution, effort and activity across the wind farm area and cable corridor. This monitoring information could also play a key role in strategic fisheries monitoring and contribute to priority ScotMER evidence gaps.

Hopefully these comments are helpful to you.

Yours sincerely,

Renewable Energy Environmental Advice group
Marine Scotland Science

National Trust for Scotland

National Trust for Scotland
Hermiston Quay
5 Cultins Road
Edinburgh EH11 4DF

Tel: 0131 458 0200
Web: nts.org.uk

NTS Objection to Berwick Bank Offshore Windfarm

1. Summary

The National Trust for Scotland (the Trust) cares for St Abb's Head National Nature Reserve (NNR), which will be directly impacted by Berwick Bank Offshore Windfarm. The Trust has a duty to care for, share and speak up for Scotland's magnificent heritage. This not only involves the sites we care for but also Scotland's amazing coastlines, seas, marine life, seabirds and communities.

The Trust welcomes the ambition behind Berwick Bank Offshore Windfarm, however we object to the proposed location. We believe the current proposal will have significant detrimental, long term and potentially irreversible impacts on Scotland's natural and cultural heritage, including our critical seabird colonies, other species and habitats in designated sites, landscape, coastal character and coastal communities. We also contest the projected outcomes of the compensation measures as they fall far short of mitigating these impacts, let alone offering additionality.

We believe that other locations such as deep-water sites further out to sea would be more appropriate and that the application should be rejected by Marine Scotland. SSE-R should be directed to scope out other locations where development will have a lesser impact and proportionate and achievable compensation that offers true additionality can be realised. This objection is supported by the National Trust for England, Wales and Northern Ireland.

National Trust for Scotland
Hermiston Quay
5 Cultins Road
Edinburgh EH11 4DF

Tel: 0131 458 0200
Web: nts.org.uk

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2. Geographical context

SSE-R has submitted an application to Marine Scotland for the construction of a 4GW offshore windfarm at Berwick Bank, in the Firth of Forth. The site is situated about 33km from St Abb's Head NNR.

The proposed site sits on the Firth of Forth Banks Marine Protected Area (MPA) which is designated for its species, habitats and geomorphological features. It is also situated on top of the Outer Firth of Forth and St Andrews Bay Complex Special Protection Area (SPA), which is designated for the protection of 21 seabird and waterbird species.

St Abb's Head NNR has internationally important seabird colonies. The cliffs are populated by about 45,000 seabirds during the breeding season which includes internationally important numbers of guillemots (approximately 3% of the British breeding population) and nationally important numbers of kittiwakes, razorbills and shags. Due to this St Abb's Head is a popular birdwatching site. Our seabird population monitoring means we hold a dataset spanning more than 30 years. This dataset is of significant value as very few other sites in the UK have such a long time series.

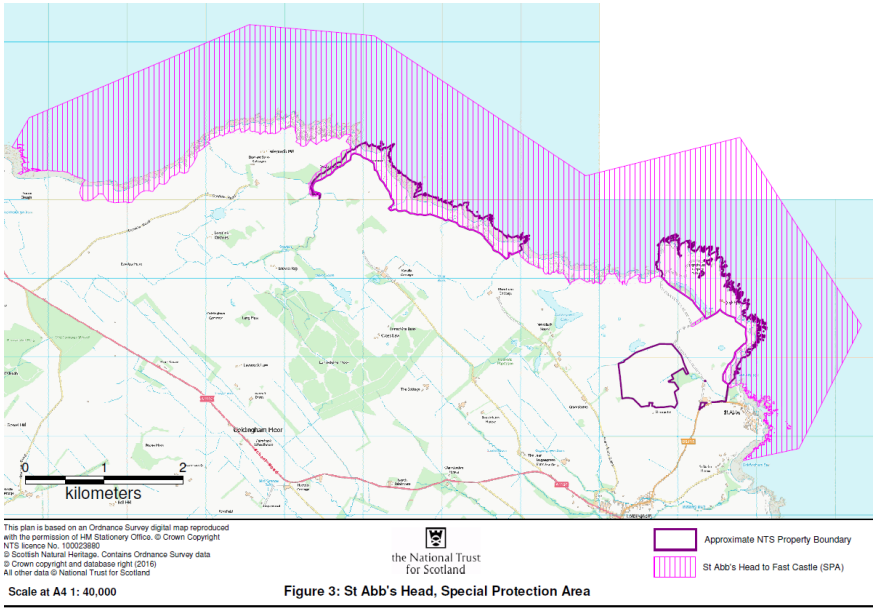

Fig 1. St Abb's Head NNR property boundary and SPA boundary

St Abb's Head is contained within the Berwickshire Coast Special Landscape Area (SLA) because of the dramatic, wild and unspoilt nature of the landscape. St Abb's Head Property Statement states that the landscape value is based on its 'seascapes and panoramic views' and there 'is a strong natural feel to the place and the lack of built structures helps to strengthen the feeling of wildness. Visitors… are afforded the opportunity to marvel not only at the wildlife of the area, such as passing cetaceans, and

National Trust for Scotland
Hermiston Quay
5 Cultins Road
Edinburgh EH11 4DF

Tel: 0131 458 0200
Web: nts.org.uk

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seabirds either nesting, in flight or on the sea, but also to appreciate the fishing and other maritime activities taking place in the vicinity right before their eyes."[1]

3. The Trust's Policy Position on Renewable Energy

The Trust supports well-designed renewable energy developments of the right type and scale in appropriate locations. The development of offshore wind is vital to increasing Scotland's renewable energy generation capacity to meet the Scottish Government's targets of net zero by 2045 and the Trust supports offshore wind, as it does onshore wind, of the right scale, in the right location.

Offshore windfarms should not be located where they are projected to have significant negative impacts on natural and cultural heritage (particularly those elements designated of international or national importance within designated areas such as Special Protection Areas, Special Landscape Areas and Marine Protected Areas) unless:

(a) mitigation is proposed that will reduce impact to an acceptable level; or
(b) compensation measures are proposed that will produce net positive, additional outcomes that adequately compensate for the impacts.

4. The Trust's Objection to Berwick Bank Offshore Windfarm

The Trust objects to the proposed development both due to the negative impacts on the special qualities of St Abb's Head NNR, and because of the negative impacts it will have on Scotland's natural and cultural heritage which will be felt much more widely.

The Trust objects to the Berwick Bank Offshore Windfarm as we:

- contest the ability of contest the validity of the methods of gathering and interpreting scientific data and the accuracy of seabird mortality figures;
- disagree with the projected impacts and associated projected scale relating to seabirds, landscape, fisheries, species and habitats and designations;
- disagree that the proposed compensation measures are effective and additional; and
- believe that approval of the application would result in Marine Scotland being in contravention of the 1994 Habitats Regulations and 2010 Marine Scotland Act.

[1] St Abbs Head Property Statement 2016

National Trust for Scotland
Hermiston Quay
5 Cultins Road
Edinburgh EH11 4DF

Tel: 0131 458 0200
Web: nts.org.uk

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4.1 Legal basis for objection

The Trust believes Marine Scotland are unable to approve the application without contravening Regulation 48 (5) of the Conservation (Natural Habitats, &c.) Regulations 1994. This states:

> *In the light of the conclusions of the assessment, and subject to regulation 49, the authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site.*

Regulation 49 (1-2) states:

> *If they are satisfied that, there being no alternative solutions, the plan or project must be carried out for imperative reasons of overriding public interest (which, subject to paragraph (2), may be of a social or economic nature), the competent authority may agree to the plan or project notwithstanding a negative assessment of the implications for the site.*
>
> *(2) Where the site concerned hosts a priority natural habitat type or a priority species, the reasons referred to in paragraph (1) must be either–*
>
> *(a)reasons relating to human health, public safety or beneficial consequences of primary importance to the environment, or*
>
> *(b)other reasons which in the opinion of the European Commission are imperative reasons of overriding public interest.*

The Trust argues that scale of impact means that under Regulation 48, the application cannot be approved as it will adversely affect the integrity of several SPAs including St Abb's Head to Fast Castle SPA, which supports up to almost 80,000 individual seabirds, including nationally important numbers of Razorbill, Common Guillemot, Kittiwake, Herring Gull and Shag, as well as the Outer Firth of Forth and St Andrews Bay Complex SPA, which is designated for the protection of 21 seabird and waterbird species. It may also affect the integrity of the Firth of Forth Banks MPA which is designated for its species, habitats and geomorphological features.

The Trust also argues that, with reference to Regulation 49, there *are* alternative sites for location of the windfarm where impacts would be lesser (i.e. SCOTWIND sites designated for offshore windfarms).

The Marine Scotland Act 2010 (sections 82 and 83) outlines the duties of public bodies to MPAs. Once an MPA is designated, there is a duty on public authorities to carry out their functions to further the conservation objectives of the site. The authority must not allow any activity they are responsible for authorising unless they are satisfied that there is no significant risk of hindering the achievement of the conservation objectives. Alternatively, they must be satisfied that the benefit to the public outweighs the risk of damage to the environment, there are no alternatives which would lower the risk, and that steps will be taken to compensate for any damage.

National Trust for Scotland
Hermiston Quay
5 Cultins Road
Edinburgh EH11 4DF

Tel: 0131 458 0200
Web: nts.org.uk

The MPA assessment found potential impacts include: increased suspended sediment concentrations and associated deposition, temporary habitat disturbance, long term habitat loss, introduction and spread of invasive non-native species, colonisation of new habitat, and alteration of seabed habitat. Due to the breadth and scale of these impacts, the Trust is concerned that the impact on the conservation objectives of the MPA will not be minor and that by approving the proposed development Marine Scotland may not be fulfilling its duties as set out in the Marine Scotland Act 2010.

4.2 St Abb's Head- impacts on visitor experience and designated qualities

St Abb's Head NNR receives about 50,000 visitors per year. The Trust argues that the impact on the visitor experience, their contribution to the local economy and the designated qualities St Abb's Head has not been adequately assessed. We also believe that the special qualities for which St Abb's Head is designated would be compromised by the addition of further infrastructure to the seascape.

The intertidal portion of the St Abb's Head area of the property forms part of the St Abbs and Eyemouth Voluntary Marine Reserve (VMR). The VMR was the first marine protected area in Scotland and is a nationally important scuba diving site, owing to the clarity of the water and abundance of marine life. St Abb's Head also supports commercial marine tourism, with people coming to experience the marine environment as well as the dramatic cliff and seabird colonies.

St Abb's Head is a renowned bird watching sites and a large part of its value comes from the continued protection of a wild place where nature thrives. St Abb's Head is one of just 43 NNRs in Scotland and its natural heritage must be protected for current and future generations. Moreover, St Abb's Head supports the local economy through providing a location for commercial enterprises and drawing tourism to the area. The impacts of the proposed development on these benefits have not been assessed and we argue that without this assessment a fully informed decision on the application cannot take place.

The Trust also believes that not enough attention has been given to how the development will impact the designations at St Abb's Head. Notified features of the St Abb's Head to Fast Castle Site of Scientific Interest (SSSI) include the geology of the maritime cliffs and seabirds that breed there, particularly guillemot and kittiwake. The igneous mass of St Abb's Head forms a spectacular rugged coastline with numerous clefts, gullies, geos, caves, stacks, reefs and skerries. Of principal geomorphological importance is the clear relationship displayed between lithology, structure and coastal form. The Trust is concerned that the visual impact proposed development may detract from the value of St Abb's Head's geological features. These values should not be underestimated as they play a key role in people connecting with the natural world and with the heritage of the landscape.

St Abb's Head NNR also sits in the St Abb's Head to Fast Castle SPA. We believe that the conservation objectives set out under the designation would be compromised by the proposed development,

National Trust for Scotland
Hermiston Quay
5 Cultins Road
Edinburgh EH11 4DF

Tel: 0131 458 0200
Web: nts.org.uk

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specifically for kittiwake and the wider seabird assemblage. We also believe that the landscape value identified in the Berwickshire Coast SLA would be compromised. The impacts on these designations are discussed further in 4.2 and 4.3.

4.3 Seabird Impacts

Seabirds are currently facing extreme pressure from factors such as reduced food availability and invasive predators. On top of this is a new challenge, in the form of the unprecedented deaths caused by highly pathogenic avian influenza (HPAI). The index of seabird populations in Scotland showed that even before HPAI, Scotland had lost 38% of its breeding seabirds since the index began in 1986. Of the 37 seabird species assessed in the UK, 29 are listed as 'red' or 'amber' in the traffic light of conservation threat status[2]. Scotland's seabirds are already under immense pressure and it is imperative that additional pressures that cannot be mitigated or compensated against are not allowed.

The Trust is concerned that the conservation objectives set out under the designation of the St Abb's Head to Fast Castle SPA would be compromised by this development therefore, under the Habitats Regulations, the application must be rejected.

To fulfil the conservation objectives of the SPA (to avoid deterioration of the habitats of, or significant disturbance to, the qualifying species of Common Guillemot, Herring gull, Kittiwake, Razorbill, European Shag and the wider Seabird assemblage) we are required to:

- Maintain the population of the species as a viable component of the site;
- Maintain the distribution of the species within site;
- Maintain the distribution and extent of habitats supporting the species;
- Maintain the structure, function and supporting processes of habitats supporting the species; and
- Prevent any significant disturbance of the species.

However, the impact assessment carried out to predict the magnitude of harm caused by the proposed 307 turbines to internationally and nationally protected seabird colonies shows that at St Abb's Head NNR 371 kittiwakes, 576 guillemots and 14 razorbills are expected to die **per year** for 20-35 years (the expected operational lifetime of a windfarm). This predicted magnitude of harm fundamentally undermines the management requirements of the SPA, as outlined above.

Moreover, the impact from the proposed development is significantly, higher than comparable sites. In total across all SPAs where predictions were made, and across 20 years, 40,606 puffins, kittiwakes, guillemots and razorbills are predicted to be removed from the population. This mortality is particularly high when compared to other offshore windfarms. For example, the Hornsea three development was predicted to kill 73 kittiwakes per year whilst generating a maximum of 2.85 GW power (26 kittiwakes

[2] https://britishbirds.co.uk/sites/default/files/BB_Dec21-BoCC5-IUCN2.pdf

National Trust for Scotland
Hermiston Quay
5 Cultins Road
Edinburgh EH11 4DF

Tel: 0131 458 0200
Web: nts.org.uk

per GW power). The proposed development is expected to kill 699 kittiwakes per year for a maximum generation of 4.1 GW power (171 kittiwakes per GW power). The impacts of Hornsea three, whilst much lower, were considered to be high and triggered their own derogation case. In addition, the cumulative impact of existing and already consented windfarms is considered to be very high, without the extra mortality predicted by the proposed development.

We also believe that the proposed dveelopment will have a significantly detirmental impact on the Farne Islands SPA, owned and managed by the National Trust in England. The Farne Islands are home to internationally important, protected colonies of terns (common, Arctic, roseate and Sandwich), guillemots, puffins and kittiwakes. The proposed development states that the estimated annual mortality for kittiwakes form the Farne Islands alone is 35 kittiwakes, 168 guillemots, and 21 puffins. Over an expected lifetime of the windfarm of 20-35 year this would remove over 7,500 seabirds from the Farnes Isalnds, which is incompatible with the SPA conservation objectives. As discussed in later sections we diagree the proposed compensation can mitigate this imapct. We also note the severity of imapct of the propsoed development must be looked at in the conext of HPAI, which hit the Farne Islands particularly badly and the cumulative impact of the other existing or planned offshore wind developments are already a concern for Farne Islands seabirds.

The Trust also has strong concerns over the approach used to identify impacts on seabirds. SSE-R states in the application that "*using the Scoping Approach, the RIAA concludes that an adverse effect on integrity (AEOI) cannot be excluded at eight SPAs – Buchan Ness to Collieston Coast, East Caithness Cliffs, Farne Islands, Flamborough and Filey Coast, Forth Islands, Fowlsheugh and St Abb's to Fast Castle. Four species are affected – Kittiwake, Guillemot, Puffin and Razorbill."* We reject the introduction of a 'developer approach' which appears to 'cherry-pick' lower projected impacts than the best available guidelines (though even using these low estimates the windfarm still impacts five SPAs and one red-listed species).

4.4 Landscape

Figure 2 shows the landscape impact of Berwick Bank Offshore Windfarm, as well as three other windfarms, demonstrating the cumulative impact of the proposed development. Seagreen Alpha and Seagreen Bravo will sit behind Berwick Bank, only the tips of which are visible. Neart na Gaoithe and Inchcape are both visible from shore but are less visible and smaller than the proposed development.

National Trust for Scotland
Hermiston Quay
5 Cultins Road
Edinburgh EH11 4DF

Tel: 0131 458 0200
Web: nts.org.uk

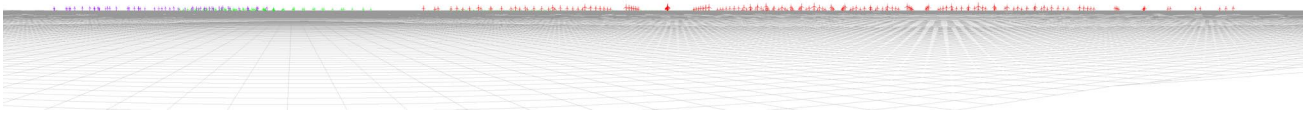

Fig 2. View from St Abb's Head (Berwick Bank Offshore Windfarm in red)

The Trust disagrees with the assessment of the impact of cumulative development on the seascape. Table 15.52, Ch 15 identifies the cumulative daytime effects of the operation and maintenance of the offshore elements of the proposed development on views *as "not significant (no additional effect)"*. However although Neart na Gaoithe and Inchcape are both visible from shore they are much less visible than the proposed development and are concentrated in a significantly smaller area, meaning the visual impact of Neart na Geoithe alone is drastically less than the visual impact of both Neart na Geoithe and the proposed development.

The impact of the cumulative development will result in changing the very character of the area from a flat seascape to a windfarm landscape. As stated in NatureScot's 2017 Visual Representation of Wind Farms Guidance "*As multiple wind farms are built they are more likely to 'compete' with the landscape's original foci … they will appear as a dominant characteristic of the area, seeming to define the character type as a 'wind farm landscape character area[3]".*

Table 15.51, Ch 15 of Environmental Impact Assessment Report - Volume 2, SSE-R identifies the daytime effects of the operation and maintenance of the offshore elements of the proposed development on views from St Abb's Head to be "*significant (major/moderate)".* Given the conclusion that the impact will be significant, the Trust is concerned that SSE-R has not proposed any mitigation or compensation.

SSE-R provides three reasons for the lack of compensation or mitigation, despite the significance of impact. The Trust disagrees with the rationale behind this decision. The reasons given are that Neart na Gaoithe turbines will be visible as well as the proposed development; the turbines will have a 'natural' feel as their movements will be synchronised with the wind and waves; and because the proposed development will only affect views out to sea not the character of the coastline.

Firstly, as seen in viewpoint 15, appendix 14.1, Neart na Gaoithe is not nearly as visible as the proposed development as it is much smaller, meaning the visual impact of Neart na Geoithe alone is drastically

[3] https://www.nature.scot/doc/visual-representation-wind-farms-guidance

National Trust for Scotland
Hermiston Quay
5 Cultins Road
Edinburgh EH11 4DF

Tel: 0131 458 0200
Web: nts.org.uk

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less than the cumulative visual impact. Secondly, the movements of the turbines are not what an assessment of landscape impact should be based on according to NatureScot guidance.

Lastly, although the proposed development is physically removed from the coastline, St Abb's Head NNR and the Berwickshire Coast SLA are designated because of their sense of place, wildness, exposed character, degree of remoteness resulting from its the elevated coastline and wide views out to sea[4]. The SLA designation also cites large colonies of seabirds, the open seascape, the naturalness and 'elemental' feel of the marine environment and the aesthetic appeal of *"sea birds bobbing on the waves, small fishing boats heading round the island and the gulls wheeling overhead"* [5]. The seascape changes the proposed development will bring will have a direct and severe impact on these special qualities.

The Trust believes other sites that would suffer less adverse impacts would be more appropriate for the proposed development. We strongly believe offshore windfarm sites should be situated where they will have a lesser impact on designated landscape and other special qualities of designated areas. We also believe that developments should align with NatureScot's guidance on windfarm siting (e.g. "*Simple, open, less settled, flat coastal areas"*)[6].

4.5 Coastal communities and low impact fisheries

Many of those living in our coastal communities rely on the marine environment for their livelihoods, whether through fishing, tourism or maritime activities. This is particularly true around St Abb's Head and the East Lothian coastline, where the marine environment provides opportunities for tourism businesses such as diving and boat tours, as well as has a strong low impact fisheries heritage and industry. The majority of Dunbar's fleet is creelers. The application does not adequately consider how the proposed development may affect these communities.

The Trust welcomes the commitment to provide appropriate mitigation where the relocation of static fishing gear is necessary during the construction period but the application needs define what is meant by "*appropriate mitigation"*.

The environmental impact assessment report volume 2, Ch 12: commercial fisheries states*:*

"Existing legislation does not prevent fishing from occurring within operational wind farm array areas and it is expected that fishing activities will be able to resume to a certain degree in the Proposed Development array area. The level of activity which may resume in the Proposed Development array

[4] At Abb's Head NNR Property Statement, NTS, 2016
[5] https://eastlothianconsultations.co.uk/housing-environment/ldp-special-landscape-areas/supporting_documents/Special%20landscape%20Areas%20SPG%20Part%202%20P.71276.pdf
[6] https://www.nature.scot/doc/visual-representation-wind-farms-guidance

National Trust for Scotland
Hermiston Quay
5 Cultins Road
Edinburgh EH11 4DF

Tel: 0131 458 0200
Web: nts.org.uk

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area, however, would depend on the perception of individual skippers with regard to risks associated with operating fishing gear within the Proposed Development array area at a given time."

The Trust is concerned that the application confuses the lack of legislation to prevent fishing within operational offshore windfarms with meaning that fishing is safe and permissible in them. The application should provide analysis of how likely it is skippers will feel safe entering the proposed development under different weather conditions. The Trust is particularly concerned about access to waters for low impact fisheries, which are an important part of the East Lothian coastline's cultural heritage and economy. The Spatial Squeeze in Fisheries report found that fishermen will be banned from over half of Scottish waters by 2050 due to the introduction of Highly Protected Marine Areas and renewables development, potentially indicating that many skippers would not feel safe entering operational offshore windfarms.

The Trust highlights a lack of accuracy in the application. In Ch 12, the statement *"spatial management measures in the Firth of Forth Complex MPA are being consulted"* on is inaccurate. Additionally it is a misinterpretation of the statutory consultation process to state that an outcome of the consultation will be the implementation of spatial management measures. We cannot pre-empt the outcome of Scottish Government consultation. Therefore, this should not be considered as a valid reason for not considering mitigation or compensation.

In Appendix 18.1: Socioeconomics and Tourism Technical Impact Report, SSE-R project that the number of local direct, indirect and induced full-time equivalent job years[7] created by the proposed development in the baseline UK supply scenario for each level 1 category for option 1 and option 2 will be 12,330 and 12,150 respectively. The Trust recognises that this total includes jobs relating to all parts of the proposed development's lifespan but would welcome more information on securing recruitment in the local area. We also believe SSE-R should be strongly encouraged to look at where fisheries displacement does occur, how those whose livelihoods are impacted could be supported to transition into jobs relating to the proposed development.

Additionally, the Trust questions the use of FTE job years instead of FTE jobs, as the use of FTE jobs would have allowed comparisons between sectors and projects. The use of FTE job years is uncommon as far as we are aware, making it very difficult to contextualise the figures provided. Assuming the project ran for twenty years, then the gross job estimates would be around 600 jobs over that period.

The employment estimates have not been adjusted for deadweight, displacement, or substitution, as would be expected if the standard Green Book[1] approach had been followed. The report does not, and on that basis we would expect the net estimate to be lower than that proposed here[8].

[7] The application states *FTE job year is the same as one full-time job for one year*
[8] HM Treasury (2022), *The Green Book: Central Government Guidance on Appraisal and Evaluation*

National Trust for Scotland
Hermiston Quay
5 Cultins Road
Edinburgh EH11 4DF

Tel: 0131 458 0200
Web: nts.org.uk

Chapter 12 states that *"guidance on community benefits in relation to offshore wind is currently being developed by Marine Scotland".* The Trust recommends that as well as incorporating this guidance, SSE-R incorporates the Scottish Government's Good Practice Principles for Community Benefits from Offshore Renewable Energy Developments in 2018. Although provision of community benefit is voluntary, the Trust would like to see these principles adhered to and notes that community benefit should be additional to compensation to specific sectors like fisheries.

Turning to electromagnetic field (EMF) impacts, given the historic importance of the fishing industry along the Berwickshire Coast and the difficulty in assessing the likely impacts of the transmission cables on commercially important species, the current Environmental Impact Assessment (EIA) considerations for these impacts are insufficient. There is currently a significant lack of knowledge of the impacts of EMF from AC and DC transmission cables which results in the need for a tailored, site specific, EIA.

We have concerns that scientific literature utilised to inform on the potential impacts of EMF on benthic species within Ch 8 – Benthic Subtidal and Intertidal Ecology are outdated and based on modelled predictions. The primary citations used to advise on the magnetic field strength and decay are from 2005 and 2009, with the '*recent study*' cited (CSA, 2019) being primarily based on older modelled studies from 2011[9].

The developer has stated that *"The Berwickshire and North Northumberland Coast SAC is located 4.12 km from the Proposed Development export cable corridor. On the basis that there is no spatial overlap there is no pathway for impact from EMF effects and therefore no further assessment is required for this impact."* However many commercially fished and ecologically important species within the Berwickshire and North Northumberland Coast SAC are migratory, with some undertaking migrations upwards of 300km[10]. In addition to these migrations, many commercially important crustacean populations are transient in nature with populations moving between different regions on a large scale.

Given the limitations of our current understanding on the impacts of EMF on benthic invertebrates the Trust believes there may be need for more robust research and continued monitoring.

4.6 Compensation proposed in derogation case

4.6.1 Sandeel fisheries

The Trust argues this compensation measure is not additional; is unable to be fully delivered by SSE-R; and fails to fully assess the ecological effectiveness of closing SA4. The below comments (unless specified) relate to both options of closure of SA4 and ecosystems management of SA4 as much of the same text is present when discussing both scenarios.

[9] Normandeau et al. (2011)

[10] Hunter, E., Eaton, D., Stewart, C., Lawler, A. and Smith, M.T., Edible crabs "Go West": migrations and incubation cycle of Cancer pagurus revealed by electronic tags. *PLoS One*, *8*(5), p.e63991. (2013)

National Trust for Scotland
Hermiston Quay
5 Cultins Road
Edinburgh EH11 4DF

Tel: 0131 458 0200
Web: nts.org.uk

Firstly, the proposed measure cannot be considered as compensation because it is not additional. The derogation case states "*at the time of writing, the Applicant is unaware of any other plans/ initiatives to expand the 'sandeel box' or impose any other restrictions/ closures in the remaining sandeel fishery SA4. Therefore, the Applicant's plan would be considered new and additional in this context."*

This statement is inaccurate. In 2021 RSPB released a report calling for the closure of sandeel fisheries in the Scottish and UK EEZs[11] and the Trust has recently publicly called for a closure to sandeel fisheries in the Scottish EEZ[12]. Additionally, in the Fisheries Management Strategy 2020 to 2030: delivery plan (published September 2022) the Scottish Government committed to consulting on the future of Sandeels management in Scottish waters and their official public position is "*not to support fishing for sandeels in our waters"*[13]. The closure of sandeel fisheries in Scottish waters, which includes SA4, has already been committed to by Scottish Government therefore we believe this compensation measure is not additional. Indeed, in proposing SA4 alone is closed, the proposed compensation actually offers *less* than Scottish Government's commitment.

Moreover, the compensation measure cannot be considered additional because closure of sandeel fisheries is not required because of the impacts of the proposed development but because of other existing pressures on seabirds which the proposed development will add to.

The compensation measure should not be considered by Marine Scotland as delivery of it is contingent on the actions of third parties. Closure of SA4 is a decision for Scottish Ministers and may require negotiations at an EU fisheries level, for which UK Government assumes responsibility. This means closure of SA4 is not something SSE can deliver alone although they could be an important stakeholder in influencing policy.

The Trust is disappointed to see the lack of ambition in this proposed compensation measure, and subsequently questions the projected effectiveness. SSE-R states "*the closure of sandeel fishing in SA4 is expected to immediately benefit all SPA populations in proximity to the Proposed Development through facilitating an increase to seabird adult survival."* For benefit to occur at the scale suggested a closure of all Scottish waters not just SA4. This is because there are some species such as fulmars and gannets with large foraging ranges who will leave SA4. Seabirds will also forage wider than SA4 during the pre-breeding and non-breeding seasons.

The Trust contests the factual accuracy of the statement *" [there will be a] likely increase in immigration and positive spillover effects of reduced sandeel mortality into SA1r.* Sandeels tend to spend their lifetimes in the same habitat as they are very sensitive to habitat change. They are

[11] https://community.rspb.org.uk/ourwork/b/scotland/posts/shrinking-sandeels-shrink-the-fishery#:~:text=In%20recent%20years%2C%20sandeel%20abundance,and%20survival%20of%20sandeel%20larvae.
[12] https://www.nts.org.uk/stories/help-us-save-scotlands-seabirds
[13] https://www.parliament.scot/chamber-and-committees/questions-and-answers/question?ref=s6w-00600

National Trust for Scotland
Hermiston Quay
5 Cultins Road
Edinburgh EH11 4DF

Tel: 0131 458 0200
Web: nts.org.uk

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distinctly defined stocks that do not tend to migrate between habitats and therefore there is unlikely to little spill over effect.

Finally, the Trust questions the efficacy of SA4 closures and the accuracy with which the ecologically effectiveness of such a measure has been assessed. The derogation case also does not accurately characterise all the causes of sandeel depletion. The Trust agrees that one cause of the lack of sandeel abundance is pressures from fisheries but mounting scientific evidence shows that sea warming, and its effect of reducing food available to sandeels, is also one of the primary reasons for reduced sandeel abundance[14].

The effects of natural predation, particularly by large fish, and mortality by the sandeel fishery have an effect on sandeel abundance which is additive to sea warming[15][16]. Therefore, closure of SA4 alone is not guaranteed to result in predictable increase in sandeel abundance and it is misleading to claim *with certainty* the number of seabirds that will be added to the population following closure of the sandeel fishery.

The developer states that closing the fishery may result in more sandeels to be consumed by other commercially important fish species. The Trust argues that this interaction does not appear to have been considered in the prediction of numbers of seabirds that will be added to the population and highlights the danger of oversimplifying the web of ecological interactions which determine prey available to seabirds. Predation by other fish is the dominant source of predation mortality, far greater than that of other marine predators and so changes in populations of predatory fish, and other factors, are also important in determining the effect of SA4 sandeel fishery closure. This again highlights that it is misleading to claim *with certainty* the number of seabirds that will be added to the population following closure of the sandeel fishery.

Moreover, the uncertainty in the magnitude of reduction in fishing pressure expressed throughout the derogation case (e.g. *"specific area that is trawled by the [sandeel] fishery is unknown"* and *"the scale of reduction of fishing is somewhat uncertain"*) is not reflected in claims of large benefits *("high (beneficial)"* and *"major (beneficial)")* in terms of available prey to seabirds, marine mammals and valuable commercial fish, which are repeatedly made.

Finally, SSE-R state "*In the unlikely event that monitoring demonstrates insufficient returns, a suite of adaptive management measures will be implemented. This include (1) 'built-in' measures i.e. adaptations … including exploring the potential to limit other fishing methods (such as scallop dredging)".* The Trust does not agree this should be considered by Marine Scotland as a potential adaptive management measure since stopping scallop dredging is not something SSE-R has the power to do. This sits with Scottish Ministers and fisheries authorities.

[14] https://www.frontiersin.org/articles/10.3389/fmars.2019.00201/full
[15] http://www.ccpo.odu.edu/~klinck/Reprints/PDF/wanlessProgOcn2007.pdf
[16] Carrol et al 2017

National Trust for Scotland
Hermiston Quay
5 Cultins Road
Edinburgh EH11 4DF

Tel: 0131 458 0200
Web: nts.org.uk

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4.6.2 Biosecurity on Handa

Rats were cleared from Handa in 1997 but returned by 2005. They were again cleared in 2007/8 but again returned in 2012. Experience also shows that the rats have a way to reach Handa, perhaps swimming from the nearby mainland (which is 300m away. Rats can swim up to 2 km). The history of Handa and proximity to the mainland highlight a high risk of re-invasion which is not accounted for in the derogation case.

The current kittiwake population is 7,498 birds. The numbers of birds anticipated to increase per year on Handa appears to be overestimated as Kittiwakes commonly nest on very steep cliffs where it is difficult for rats to access. Despite the fact rat eradication will likely have limited impact on breeding success of Kittiwakes, the report predicts 124 new adult kittiwakes and 251 new chicks to the population each year.

4.6.3 Dunbar warden

The derogation case suggests that adding artificial nests and ledges to Dunbar castle has *"the potential to increase kittiwake breeding success and therefore population growth"*. This is counter to reasonable expectation. The kittiwake population at Dunbar is declining meaning there are currently available ledges for birds, and no requirement for the addition of artificial ledges.

The existing ledges are not being filled because the population is declining for other reasons – most likely factors away from the colony such as climate change or, more recently, interactions with new offshore windfarms in the Firth of Forth. Furthermore, clipping plastic from nests will be highly unlikely to have any population impact. Kittiwakes incorporate marine litter into their nests in the same way they incorporate any other material, it does not lead to weaker nests as suggested by SSE-R. While wardens are always a welcome addition to provide education and reduce disturbance to breeding birds, the Trust argues the assessment of "*major beneficial significance"* of introducing a warden is highly misleading.

4.6.4 Overall impact from the three compensation measures

Table 26 *("balance of overall annual impacts and benefits to the SPA network for both fisheries management and colony based measures combined")* is dangerously misleading. We have described here large sources of uncertainty in the predicted efficacy of compensation measures and substantial grounds to suggest that the measures may not be effective.

Nevertheless Table 26 claims, without any confidence intervals or caveats, to predict large *"surpluses"* of four seabird species because of the proposed compensation measures. The derogation case states that the three compensation measure are *"substantial, and justification with the evidence has been*

National Trust for Scotland
Hermiston Quay
5 Cultins Road
Edinburgh EH11 4DF

Tel: 0131 458 0200
Web: nts.org.uk

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provided within the derogation case that provide sufficient information to allow the Scottish Ministers to conclude threat the national site network will be maintained and enhanced". This wording and the information in Table 26 are highly misleading because they fail to acknowledge that there is a high degree of uncertainty in the efficacy of the proposed measures.

The Trust supports Scotland's journey away from fossil fuels towards renewable energy and supports development in the right locations and of the right size. Given the failure of the proposed measures to compensate for the impacts of the development, the Trust recommends the proposed development explores other locations where more suitable, impactful and additional compensation can be proposed.

5 Alternative Sites

Ch 4, Site Selection and Consideration of Alternatives states that two deep water sites were considered however DW1 was excluded because it overlapped with the MPA "*…as illustrated in Figure 4.7, it was not possible to avoid the MPA for DW1, as this deep water option overlaps with the MPA at the south-east part of the Proposed Development array area…. the Firth of Forth Banks Complex MPA is considered the most significant constraint at this stage of development".*

The overlap with the MPA was the most significant constraint on DW1 being considered as the location for the proposed development, however the current site overlaps with the MPA. From maps provided by SSE-R, we estimate 20-30% of the proposed development site overlaps with the MPA. The Trust would welcome an explanation as to why overlap with an MPA was considered a justification for excluding DW1 but not a reason to exclude the current site.

The Trust believes SSE-R should be directed to explore other more suitable sites where the impact on seabird mortality, landscape, fisheries and coastal communities and designated sites is less significant and severe, and where compensation that is effective and additional can be proposed, for example, deep water sites that are of less significance to seabird foraging.

6 Statement of Need

The application includes a statement of need for the development. However, the statement consistently refers only to the singular goal of decarbonising when the reality is that the challenge as described by the United Nations at COP15 is that we are facing the twin threats of climate change and biodiversity loss. The statement of need has accurately described the urgency to decarbonise but has neglected the twin challenge of biodiversity loss. It has also repeatedly claimed that we cannot meet decarbonising goals without the proposed development without adequately referencing the high biodiversity costs predicted for this development.

National Trust for Scotland
Hermiston Quay
5 Cultins Road
Edinburgh EH11 4DF

Tel: 0131 458 0200
Web: nts.org.uk

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Yours,

Philip Long

Chief Executive Officer, the National Trust for Scotland

Supported by,

Ben McCarthy

Head of Nature Conservation and Restoration Ecology, the National Trust for England, Wales and Northern Ireland

NATS Safeguarding

From:	NATS Safeguarding
To:	MS Marine Renewables
Cc:	NATS Safeguarding
Subject:	RE: Berwick Bank Offshore Wind Farm - Section 36 and Marine Licence Applications - Consultation - Response Requested by 21 February 2023 [SG30350]
Date:	22 December 2022 15:54:56
Attachments:	image001.png

NERL is pleased to note that the developer recognises the risk to NERL's operation (Appendix 14.1) from the proposed development

Having already worked with them at a pre-planning stage to identify some of these risks and begin the process of exploring mitigation options, we plan on continuing to do so throughout the planning process.

Regards,

Alasdair

NATS Safeguarding

Natural England

Date: 06 April 2023
Our ref: 416763

Marine Scotland - Marine Planning & Policy
Scottish Government
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

Natural England
Lancaster House
Hampshire Court
Newcastle upon Tyne
NE4 7YH

T 0300 060 3900

BY EMAIL ONLY

Dear Emma

Application for consent under section 36 of the electricity act 1989 (as amended), marine licences under part 4 of the marine (Scotland) act 2010 and marine and coastal access act 2009 to construct and operate Berwick Bank offshore windfarm, off the coast of East Lothian and the Scottish Borders.

Thank you for your consultation dated 22 December 2022. We also thank you sincerely for the extensions you granted us for this response. The following constitutes Natural England's formal statutory response.

The advice contained within this letter is provided by Natural England, which is the statutory nature conservation body within English territorial waters (0-12 nautical miles). We have delegated responsibility from JNCC to also advise on offshore wind farms in all English waters out to 200 nautical miles or the median line. Due to our remit, we restrict our comments to impacts to species from English Marine Protected Areas and to species in English waters.

The following documents have been reviewed for this response:

Derogation documents:

- derogation_case
- derogation_case_-_colony_compensatory_measures_evidence_report
- derogation_case_-_environmental_impact_assessment_report
- derogation_case_-_fisheries_compensatory_measures_evidence_report
- derogation_case_-_implementation_and_monitoring_plan_
- derogation_case_-_report_to_inform_appropriate_assessment
- derogation_case_-_statement_of_need_

EIA documents:

- EIA ornithology chapter
- eia_-_non-technical_summary
- eor0766_berwick_bank_offshore_eia_-_001_table_of_contents
- eor0766_berwick_bank_offshore_eia_-_002_overarching_glossary
- eor0766_berwick_bank_offshore_eia_-_chapter_01_introduction
- eor0766_berwick_bank_offshore_eia_-_chapter_02_-_policy_and_legislation

- eor0766_berwick_bank_offshore_eia_-_chapter_03_-_project_description
- eor0766_berwick_bank_offshore_eia_-_chapter_04_-_site selection and alternatives
- eor0766_berwick_bank_offshore_eia_-_chapter_05_-_stakeholder_engagement_and_consultation (1)
- eor0766_berwick_bank_offshore_eia_-_chapter_06_-_EIA methodology
- EIA volume 3 appendix 11.1 Baseline ornithology report
- EIA volume 3 appendix 11.1 Annex: design-based estimates
- EIA volume 3 appendix 11.3 Collision risk modelling tech report
- EIA volume 3 appendix 11.4 Ornithology displacement tech report
- EIA volume 3 appendix 11.5 Ornithology apportioning tech report
- EIA volume 3 appendix 11.5 Annex D apportionment
- EIA volume 3 appendix 11.6 Ornithology PVA tech report
- EIA volume 3 appendix 11.6 Annex E summary of approach and collation of in-comb totals
- EIA volume 3 appendix 11.7 breeding season boat-based survey results

HRA documents:

- riaa_-_executive_summary_and_conclusion
- riaa_-_part_1_-_introduction_and_background
- riaa_-_part_1_appendix_1a_-_stage_1_lse_screening_report
- riaa_part_3_spa_assessment_-_signed

Additional documents:

- Guillemot apportioning - Note for NE_December 2022

SUMMARY OF NATURAL ENGLAND'S ADVICE

Potential for adverse effects on English SPAs

Natural England do not agree with all of the conclusions of the HRA. We would advise adverse effects on site integrity for more species and sites than the HRA currently concludes. Please see below and Annex A Section 3 Offshore Ornithology - Overview for a table with a list of sites and features where we cannot rule out adverse effects.

Farne Islands SPA

Guillemot – cannot rule out AEOI alone

Assemblage – cannot rule out AEOI alone due to impacts on kittiwake, a named assemblage component, guillemot and potentially puffin (a named assemblage component).

Flamborough & Filey Coast SPA

Kittiwake – cannot rule out AEOI in-combination

Razorbill – cannot rule out AEOI in-combination

Assessment methodologies

NatureScot's advice on ornithological impact assessment methodologies, differs from that provided by Natural England in some respects. These differences are flagged in this response to provide context to aid with the interpretation of the results of the impact assessment conducted by the applicant. Natural England do not expect the applicant to undertake a separate impact assessment based on Natural England's advice.

Natural England have restricted comments on the impact assessment to the following species: Kittiwake, Guillemot, Razorbill, Gannet, and Puffin.

- Sabbatical Rates

Natural England note that the applicant has excluded 'sabbatical birds' from the impact assessment, based on assumptions about the percentage of non-breeding adults in each population. Natural England note that we do not agree with the use of sabbatical rates to exclude sabbatical birds from impact assessment, nor do we consider the inclusion of sabbatical rates to be appropriate within the apportioning process.

- Stable Age Apportioning

Natural England note that the applicant has apportioned birds to age classes according to stable age structure calculated from population models for many species and seasons. Natural England does not support the use of the stable age structure approach for age apportioning.

Compensatory measures

Natural England have restricted comments on the proposed compensation measures to the ecological likelihood of success of the proposed measure, particularly with respect to English SPAs. We consider there is a high degree of uncertainty regarding the response of sandeels to management or a closure and therefore the scale of benefit to seabirds. We also highlight the current Defra consultation regarding closing the sandeel fishery in English waters, including part of the area that the developer proposes to be closed as compensation.

Please find our detailed comments in the attached Annexes:
Annex A – Natural England's Comments on the Report to Inform Appropriate Assessment
Annex B – Natural England's Interim guidance on Highly Pathogenic Avian Influenza (HPAI)
Annex C – Natural England's Interim guidance on collision risk modelling avoidance rates
Annex D – Natural England's Comments on the Fisheries Compensation

For any queries relating to the content of this letter please contact me using the details provided below.

Any further consultations on this case or any other should be sent to consultations@naturalengland.org.uk

Yours sincerely

Bethan Rogers

Northumbria Area Marine Team, Natural England
E-mail: bethan.rogers@naturalengland.org.uk

Cc NatureScot

Annex A – Natural England's Comments on Report to Inform Appropriate Assessment

1 Marine Mammals

Providing the works are carried out in accordance with the application, and that mitigation measures are followed within the JNCC guidelines *'Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise (2010)'*, it can be excluded that the application will have a significant effect on marine mammals of English Special Areas of Conservation.

2 Fish

Natural England agrees with the conclusion of no Adverse Effect on Integrity to designated fish from the east coast of England Special Areas of Conservation.

3 Offshore Ornithology – Overview

The remit and extent of our advice

Natural England note that the proposed development is in Scottish waters. NatureScot's advice on ornithological impact assessments differs from that provided by Natural England in some respects. These differences are flagged in Section 5 below to provide context to aid with the interpretation of the results of the impact assessment conducted by the applicant. Natural England do not expect the applicant to undertake a separate impact assessment based on Natural England's advice. Natural England have based their comments with respect to Adverse Effect on Integrity (AEoI) on the impacts predicted by the applicant, but have attempted to flag where the predicted impacts would likely differ if Natural England's advice were followed.

Given that the proposed development is in Scottish waters, the predicted impacts are mainly at Scottish SPAs. Natural England have restricted comments to predicted impacts at English SPAs. However, Natural England note that the predicted impacts at Scottish SPAs are extremely large, and that the impacts at English SPAs need to be considered in the context of the overall impact to the wider network, which appears substantial.

We also note the need for a precautionary assessment of impacts given the recent and ongoing outbreaks of highly pathogenic avian influenza (HPAI) in seabirds.
Please Annex B for Natural England's interim avian influenza guidance.

Natural England have restricted comments on the impact assessment to the following species: kittiwake, guillemot, razorbill, gannet, and puffin.

Natural England have restricted comments on the proposed compensation measures to the ecological likelihood of success of the proposed measure, particularly with respect to English SPAs.

4. Offshore ornithology – impacts on English SPAs

Below is a table of key features, the conclusions of the Applicant regarding these, and Natural England's advice

Site	Feature	Scoping approach	NE advice
Farne Islands SPA	Guillemot (feature)	No AEoI* alone or in combination	AEoI alone
Farne Islands SPA	Seabird assemblage (kittiwake, puffin and guillemot) (named components of assemblage)	No AEoI alone BUT AEoI in combination	AEoI alone
Coquet Island SPA	Seabird assemblage	No AEoI alone or in combination	No AEoI alone or in combination
Flamborough and Filey Coast SPA	Kittiwake (feature)	AEoI in combination	AEoI in combination
Flamborough and Filey Coast SPA	Razorbill (feature)	No AEoI alone or in combination	AEoI in combination
Flamborough and Filey Coast SPA	Guillemot (feature)	No AEoI alone or in combination	No AEoI alone or in combination
Flamborough and Filey Coast SPA	Gannet (feature)	No AEoI alone or in combination	No AEoI alone or in combination
Flamborough and Filey Coast SPA	Assemblage (feature)	No AEoI alone or in combination	No AEoI alone or in combination

Table 1 – Natural England integrity judgements on key SPA features
* AEoI = Adverse Effect on Integrity

5. Offshore ornithology – detailed comments

NE Ref	Topic	Ornithological Comment
1	General comment on assessment methodology: Sabbatical rates	Use of sabbatical rates: Natural England note that the applicant has excluded 'sabbatical birds' from the impact assessment, based on assumptions about the percentage of non-breeding adults in each population. Natural England advise that we do not agree with the use of sabbatical rates to exclude sabbatical birds from impact assessment, nor do we consider the inclusion of sabbatical rates to be appropriate within the apportioning process. If there is clear evidence relating to the proportion of adults within the population likely to be taking a sabbatical in any given year, then this can be considered at the population modelling stage. The weight of evidence is on demonstrating: a) the proportion of breeding adults in the population likely to be taking a sabbatical in any given year b) whether the SPA population estimates include or exclude sabbatical birds, and c) whether or not sabbatical birds are likely to use the area of sea around the SPA colony. This evidence can be used to inform whether and how sabbaticals are best incorporated in a Population Viability Analysis (PVA). In the absence of such evidence, Natural England's standard advice is to assume no sabbaticals, i.e. to assume all adult birds are breeding birds.

		Natural England note that the applicant has excluded 10% of kittiwakes, 10% of gannets, 7% of guillemots, 7% of razorbills and 7% of puffins from the impact assessment as 'sabbatical birds', without providing evidence in support of this approach similar to that outlined above. Natural England therefore advise that all adult birds are assumed to be breeding birds within the impact assessment. We note that the inclusion of these excluded sabbatical birds in the impact assessment would likely increase the predicted impacts for kittiwake, guillemot, razorbill, gannet, and puffin.
2	General comment on assessment methodology: Stable age appotrioning	<u>Use of stable age apportioning:</u> Natural England note that the applicant has apportioned birds to age classes according to stable age structure calculated from population models for many species and seasons. Natural England does not support the use of the stable age structure approach for age apportioning, due to: a) uncertainty regarding survival rates – in particular for immature age classes, b) lack of information about non-breeding adult components of populations, and c) the underlying assumption that populations are stable (which is not the case for many populations) Natural England therefore advise that, where possible, site-specific ageing data (e.g. from Digital Aerial Surveys (DAS)) be used to age-apportion birds. Where this data is not available, Natural England advise that all 'adult-type' birds are apportioned as adults. Natural England note that the applicant has used the stable age approach to age-apportion guillemot, razorbill, and puffin in the absence of site-specific data. Natural England would advise that all 'adult-type' (i.e. full-sized) auks be apportioned as adults. Natural England note that the applicant has used ageing data from the DAS to age-apportion kittiwake during the breeding season, but not during the non-breeding season, when the stable age approach was used. Natural England seeks clarity regarding why ageing data from the DAS surveys was not used to age-apportion kittiwake in the non-breeding season. Natural England advise that ageing data from the DAS surveys be used to age-apportion kittiwake in the non-breeding season, or, if this data is not available or suitable, Natural England advise that all kittiwake be apportioned as adults for the non-breeding season. Natural England note that the applicant has used ageing data from the DAS surveys to age-apportion gannet during the breeding season, but not during the non-breeding season, when the stable age approach was used. This resulted in 45% of birds being apportioned as immature birds during the non-breeding season. Natural England seeks clarity regarding why ageing data from the DAS surveys was not used to age-apportion gannet in the non-breeding season. Natural England further note that the applicant has stated that surveys showed 4% of gannet in the non-breeding season were

		immature birds (2% juvenile and 2% immature), which is a much smaller proportion than the 45% immatures apportioned using the stable-age structure approach. Natural England advise that site-specific ageing data (e.g. from DAS surveys) is used to age-apportion birds, and that where this type of site-specific data is not available, all 'adult-type' birds are apportioned as adults. Natural England note that applying the Natural England approach and foregoing stable-age apportioning in the impact assessment would likely increase the predicted impacts for kittiwake, guillemot, razorbill, gannet, and puffin.
3	General comment on assessment methodology: auk displacement and mortality rates	Displacement and mortality rates: Natural England note that the upper ends of the ranges of displacement and mortality rates used for the displacement assessment by the applicant, even in the "Scoping Approach", are not as high as the upper ends of these ranges that Natural England advise for guillemot, razorbill or puffin. The upper ends of the ranges used by the applicant in the "Scoping Approach" to assess displacement of auks are a Displacement Rate of 60% and a Mortality Rate of 3-5% (breeding season for guillemot, razorbill and puffin) or 1-3% (non-breeding season for guillemot and razorbill only). The upper ends of the ranges advised by Natural England for these species would be a Displacement Rate of 70% and a Mortality Rate of 10% , to be applied in all seasons. Natural England's approach is based on evidence of the variability and uncertainty in the data and potential impacts, which is why we advise that this wider range of values should be considered. Natural England note that assessing displacement impacts using the upper ends of the ranges advised by Natural England for displacement and mortality rates would likely increase the upper end of the predicted range of impacts on guillemot, razorbill, and puffin.
4	General comment on assessment methodology: auk displacement – spatial approach	Spatial approach to displacement assessment: Natural England note that the applicant has used a 'spatial approach' to displacement assessment for auk species, resulting in lower displacement rates being applied to the 2km buffer zone. Natural England does not agree with the application of any gradients of displacement impacts being applied to buffer zones and highlight that this approach is not taken within English windfarm impact assessments. Note that the joint-SNCB (2022)* guidance on displacement assessment states that "*no gradient of impact of displacement level should be applied to the buffer zone, as there is not sufficient evidence to underpin any such gradient application on a species-by-species basis*". Natural England therefore advise that the same displacement and mortality rates should be applied throughout the project area and the 2km buffer area. Natural England note that the application of the same rates of displacement and mortality throughout the project area and buffer zone would likely increase the predicted impacts on guillemot, razorbill, and puffin.

		* Joint SNCB Interim Displacement Advice Note (jncc.gov.uk) (https://data.jncc.gov.uk/data/9aecb87c-80c5-4cfb-9102-39f0228dcc9a/joint-sncb-interim-displacement-advice-note-2022.pdf)
5	General comment on assessment methodology: construction displacement	Construction displacement: Natural England note that the applicant has not considered impacts of displacement during construction or decommissioning. Natural England advise that there are likely to be displacement impacts during construction and decommissioning. We currently advise that displacement at these times should be considered to be half the predicted impacts during operation and maintenance for impact assessment. Natural England note that the consideration of displacement impacts during construction and decommissioning would likely increase the predicted impacts on guillemot, razorbill, puffin, and gannet.
6	Interpretation of Population Viability Analysis (PVA) outputs	Natural England note that there is uncertainty regarding population trends of kittiwake, guillemot, razorbill, gannet and puffin given recent and possibly ongoing impacts of Highly Pathogenic Avian Influenza (HPAI). Natural England note there is therefore a need for a precautionary approach when interpreting PVA outputs in the context of predicted population trends. Please see Annex B for Natural England's interim guidance note for more details.
7	General comment on assessment methodology: kittiwake displacement	Kittiwake displacement: Natural England note that the applicant has assessed kittiwake for displacement impacts. Natural England do not currently advise assessment of displacement impacts for Kittiwake. Natural England note that excluding displacement impacts for kittiwake would likely reduce the predicted impacts on kittiwake.
8	Forthcoming changes to assessment methodologies: kittiwake and gannet	Collision risk avoidance rates advised by Natural England for kittiwake and gannet are expected to change in the near future. A report reviewing available evidence will shortly be published by JNCC, and following this Natural England will advise new rates are used for kittiwake and gannet. In the meantime Natural England have issued new interim guidance on avoidance rates for use in Collision Risk Modelling and have new interim guidance on avoidance rates for use in Collision Risk Modelling. Please see Annex C for Natural England's Interim guidance on collision risk modelling avoidance rates. Natural England note that applying these new avoidance rates would likely reduce the collision impacts predicted for kittiwake and gannet. Natural England will also shortly publish a review of gannet macro-avoidance of offshore wind turbines. Natural England note that applying this macro-avoidance rate would likely reduce impacts to gannet predicted from collision, and increase impacts to gannet predicted from displacement.
9	General comment on assessment methodology: apportioning of	Natural England note that the approach taken to apportioning guillemot in the non-breeding season is that advised by NatureScot. Natural England generally advise that non-breeding guillemot are apportioned according to the Biologically Defined Minimum

	non-breeding guillemot	Population Size (BDMPS) method. We note that the applicant has taken note of these different approaches and provided figures for the Natural England approach in a separate note, which is appreciated. Natural England note that, should the Natural England approach be applied, then there would be impacts apportioned to guillemot at Flamborough and Filey Coast SPA, and this would mean that adverse effect on guillemot at Flamborough and Filey Coast SPA could not be ruled out, in-combination with other projects. This approach reflects Natural England's recent advice provided to other projects and demonstrates the sensitivity of offshore windfarm impact assessments to the methodology utilised. In this instance however, we consider the risk of Berwick Bank making a significant contribution to in-combination adverse effects on Flamborough and Filey Coast SPA guillemot is small. Given the proximity of Berwick Bank to the Farne Islands SPA, and the potential for breeding season impacts on this site, Natural England considers there is a substantially greater risk of adverse effects arising on guillemot from Farne Islands SPA.
10	General comment on assessment methodology: puffin	Natural England note that no assessment of displacement impacts has been done for non-breeding puffin. Natural England advise that displacement impacts are assessed for puffin in the non-breeding season, and apportioned according to the BDMPS method. Natural England note that following the Natural England approach would likely increase predicted impacts on puffin.
11	Conclusions regarding adverse effects on English SPAs	<u>Adverse effects on site integrity at the Farne Islands SPA</u> **Natural England do not agree with the applicant that adverse effect on integrity can be ruled out for the Farne Islands SPA due to impacts on guillemot from the project alone.** **Natural England do not agree with the applicant that adverse effect on integrity can be ruled out for the Farne Islands SPA due to impacts on populations of the seabird assemblage feature from the project alone, principally due to impacts on kittiwake, but also guillemot and potentially puffin.** <u>Adverse effects on site integrity at Coquet Island SPA</u> Natural England advises that adverse effects on integrity can be ruled out for the seabird assemblage at Coquet Island SPA. <u>Adverse effects on site integrity at Flamborough and Filey Coast SPA</u> Natural England note that the applicant has concluded that adverse effect on integrity cannot be ruled out for kittiwake at Flamborough and Filey Coast SPA in combination with other projects, whether applying the "Scoping Approach" or the "Developer Approach" to assessment. **<u>Natural England agree that adverse effect on integrity cannot be</u>**

		ruled out for kittiwake at Flamborough and Filey Coast SPA in combination with other projects. **Natural England do not agree with the applicant that adverse effect on integrity can be ruled out for Flamborough and Filey Coast SPA due to impacts on razorbill from the project in combination with other projects.** We note that the predicted impacts would potentially be higher if Natural England's approach to impact assessment were applied. This reflects Natural England's existing advice that impacts on Flamborough and Filey Coast SPA razorbill are already at a level where AEoI cannot be ruled out. Natural England agree with the applicant that adverse effect on integrity can be ruled out for guillemot at Flamborough and Filey Coast SPA. Due to the project's level of contribution to in-combination adverse effects and the non-breeding apportioning approach taken. (See Section 9 regarding the implications of apportioning of non-breeding guillemot for Flamborough and Filey Coast SPA). Natural England agree with the applicant that adverse effect on integrity can be ruled out for gannet at Flamborough and Filey Coast SPA due to impacts from the project in combination with other projects. However, this conclusion can only be drawn with limited confidence due to uncertainty regarding the impacts of HPAI on gannet (and other species). Natural England agree with the applicant that adverse effect on integrity can be ruled out for Flamborough and Filey Coast SPA seabird assemblage, either alone or in-combination with other plans and projects.

Annex B –
Natural England's Interim guidance on Highly Pathogenic Avian Influenza (HPAI) outbreak in seabirds and Natural England advice on impact assessment (specifically relating to offshore wind)

November 2022

1. We are currently unclear what the short, medium and long-term effects of the 2022 HPAI outbreak will be on seabird colony abundance and vital rates (productivity and survival), though impacts at some English colonies in 2022 were likely substantial (e.g. emerging indications of estimates include adult mortality in ~30% of the UK's only roseate tern colony at Coquet Island SPA, and ~10% of Sandwich terns at the North Norfolk Coast SPA). We do not know the extent of population resilience – for instance, how many non-breeding birds might replace adults dying from HPAI in 2022 in future breeding seasons.

2. We expect HPAI to remain a threat to UK breeding seabirds (and terrestrial species of birds, especially perhaps wintering waterbirds) for the foreseeable future. It will take several years for data to be gathered on abundance, mortality and productivity, so we will need to work with imperfect knowledge in the interim.

3. The species understood to be of greatest relevance for imminent impact assessment of offshore wind farms in England are black-legged kittiwake, Sandwich tern, northern gannet, great black-backed gull, common guillemot and razorbill.

4. We expect seabird data collected prior to summer 2022 (approx. June) to remain a valid representation of 'typical' seabird distribution and density, as this was before mass mortality events began to take place. (At this point, we assume affected colonies will recover in the short or long term, depending on available recruits to colonies, scale of further outbreak, and other factors.) Data collected at sea from summer 2022 onwards will need discussion with Natural England, to understand how the species and colonies of concern, and their density at sea at certain times, may have been affected by HPAI. We welcome engagement with developers actively engaged in data collection through the Evidence Plan process.

5. Implications for data collection planned for projects beyond Round 4 will largely be site- and species-specific, and we recommend careful interpretation of results in consultation with Natural England. As the duration and severity of the epidemic is unknown and evidence will continue to accumulate over time, an iterative approach seems likely to be required.

6. Broadly, we expect any changes in abundance at colonies to be reflected proportionately in the at sea data. That is, it is reasonable to assume distribution patterns will remain broadly similar, but densities to change accordingly.

7. This assumption means that the scale of impact is likely to remain in proportion to the size of the colony. For instance, if a population were reduced by 10% then we would expect 10% fewer collisions. However, where a population has been significantly depleted, it should be considered whether an equivalent level of impact would have greater implications for the newly reduced population. Ideally this should be modelled through e.g. Population Viability Analysis as newly depleted populations could be less resilient and vulnerable to additional impact.

8. This would also reflect the likely need to ensure that the sea areas that support SPA (Special Protection Area) seabird colonies provide suitable conditions to restore populations where HPAI impacts have reduced population sizes, rather than simply maintain them. Natural England will aim to provide conservation advice that reflects any such changes.

9. Given the significant uncertainties about the health and resilience of seabird colonies introduced by HPAI, Natural England is likely to further emphasise the need to continue with a risk-based approach to its advice on additional impacts from development, particularly where populations have been significantly impacted. This is to ensure that the impacts of HPAI are not compounded by those from development.

10. This approach is also likely to be taken to compensation discussions. We are likely to recommend that the nature, scope and scale of compensatory measures reflect the uncertainties around population trends, recovery and resilience introduced by HPAI.

11. We need much more data, and urgently need all concerned with seabird conservation and related developments to fund monitoring of key variables at important colonies, so that collectively we can make best decisions about impacts and effects in the face of the threat from HPAI.

12. Natural England will shortly publish its advice to Defra underpinning an English Seabird Conservation and Recovery Plan, which includes direct recommendations for seabird recovery, some relating to disease as well as seabird monitoring.

13. We must work collectively to ensure that seabird populations are made more resilient to the type of catastrophic event caused by HPAI. This includes delivering the actions relating to feeding, breeding and survival as outlined in Natural England's recommendations to Defra in the English Seabird Conservation and Recovery Plan.

Annex C – Natural England's Interim guidance on collision risk modelling avoidance rates

This is a Natural England interim update to the current guidance on collision risk modelling (CRM) (SNCBs, 2014) summarising key changes to advice and parameter values relating to CRM. This guidance precedes the release of updated joint SNCB guidance, which is due to be released later this year. Users should be aware that as the joint SNCB guidance note has not yet been finalised there is a risk that these values may be subject to change, however Natural England consider this risk sufficiently low to issue these draft parameters to provide developers who are close to submission/examination the option of utilising this advice.

Natural England commissioned the BTO (British Trust for Ornithology) to undertake an update of Cook et al (2014), combining evidence from the sites presented in Cook et al. (2014) and any additional sites with available appropriate data (including the ORJIP offshore collision work (Skov et al 2018) to provide avoidance rates based on data across a range of sites (Cook 2021). MacArthur Green undertook a critical review of Cook 2021, which included concerns regarding the influence of one dataset on overall avoidance rates. In response to these concerns, JNCC commissioned a further review and sensitivity analysis (Ozsanlav-Harris et al in prep).

The key changes proposed within the emerging SNCB guidance are as follows:

- Support the use of the stochastic CRM (sCRM, McGregor et al 2018)
- The avoidance rates (ARs) have been updated following the review of the latest evidence base (Cook 2021) and re-analysis (Ozsanlev-Harris et al, in prep).
- The Extended Band model is no longer recommended for any species (i.e. Options 3 and 4)
- All ARs are taken from Ozsanlev-Harris et al (in prep) and are not species specific, instead species groups have been used; large gulls, all gulls, small gulls and all gulls and terns (see Table 1)
- There are some changes to the recommended nocturnal activity factors (see Tables 2 and 3)
- The suggested approach to gannet modelling is a novel methodology, which aims to account for three issues: firstly that all ARs calculated (by Ozsanlev-Harries et al, in prep, Cook 2021, Cook 2014) are 'within-windfarm' avoidance rates, secondly, there is not a gannet specific AR and thirdly that there is a clear evidence base that gannets display macro-avoidance. The methodology thus requires the reduction of density of birds in flight by an agreed macro-avoidance rate as an input to the CRM, followed by using an 'all gulls' AR within the CRM. An evidence report has been commissioned by Natural England to inform this rate using best available evidence. Until this is available, we suggest reducing the density of gannet in flight going into the CRM, either by a representative range of macro-avoidance rates of between 65% - 85% or by selecting a single rate of 70%

Table 1 - Recommended Avoidance Rates (AR) for Collision Risk Modelling taken from Ozsanlev-Harris et al (in Prep)

Species	Basic Band (2012) Model AR	Basic sCRM AR
Northern gannet*	0.992	0.993 (±0.0003)
Black-legged Kittiwake (All gulls rate)		
Lesser Black-backed Gull	0.994	0.994 (±0.0004)
Herring Gull		
Great Black-backed Gull (large gulls rate)		
Common Gull, Black-headed Gull (small gulls rate)	0.995	0.995 (±0.0002)

Sandwich tern (and all other marine species) (All gulls and terns rate)	0.990	0.991 0.0004)

* Macro-avoidance to be accounted for by a reduction of density of birds in flight based on the level of macro-avoidance displayed by this species. A project has been commissioned by Natural England to inform this rate, in the interim NE advise the use of a range of macro avoidance rates between 65% - 85% or a single rate of 70%.

Table 2 – SNCB recommended parameters for the Basic Band model – Option 1 or 2 (Band 2012)

Species	**AR**	**Flight Speed (m/s)** [1]	**NAF**[2]	**Body length (m)** [3]	**Wingspan (m)**[4]	**Flight Type**	**% of flights upwind**
Northern gannet* (All gulls rate)	0.992	14.9	8 % 1.32	0.94	1.72	Flapping	50
Black-legged Kittiwake (All gulls rate)	0.992	13.1	25-50% 2-3	0.39	1.08	Flapping	50
Lesser Black-backed Gull (Large Gulls rate)	0.994	13.1	25-50% 2-3	0.58	1.42	Flapping	50
Herring gull (Large Gulls rate)	0.994	12.8	25-50% 2-3	0.6)	1.44	Flapping	50
Great Black-backed Gull (Large Gulls rate)	0.994	13.7	25-50% 2-3	0.71	1.58	Flapping	50
Sandwich tern (All gulls and terns rate)	0.990	10.3	Defer to Garthe and Hüppop (2004) or where empirical data is available consult SNCB	0.38	1	Flapping	50
Common gull, Black-headed gull (small gulls rate)	0.995	Consult SNCB		Consult SNCB	Consult SNCB	Flapping	50
Other marine species (All gulls and terns rate)	0.990	Consult SNCB		Consult SNCB	Consult SNCB	Consult SNCB	Consult SNCB

* See note above in Table 1 regarding macro-avoidance

[1] All flight speeds from Alerstam (1997) except for Gannet from Pennycuick (1987) and Sandwich Tern from Fijn and Gyimesi (2018)
[2]All based on Garthe & Hüppop (2004) other than Gannet which is from Furness et al (2018)
[3] All named species from Snow & Perrins (1987)
[4] All named species from Snow & Perrins (1987)

Table 3 – SNCB recommended summary data for the stochastic CRM model (McGregor et al 2018)

Species	AR	Flight Speed (m/s) [1]	NAF[2]	Body length(m) [3]	Wingspan (m)[4]	Flight Type	% of flights upwind
Northern gannet* (All gulls rate)	0.993 (±0.0003)	14.9 (0)	0.08 +- 0.10 •	0.94 (0.0325)	1.72 (0.0375)	Flapping	50
Black-legged Kittiwake (All gulls rate)	0.993 (±0.0003)	13.1 (0.40)	Use central value 0.375 and SD of (0.0637) that results in 0.25 and 0.5 being captured in the 95% CI	0.39 (0.005)	1.08 (0.0625)	Flapping	50
Lesser Black-backed Gull (Large Gulls rate)	0.994 (±0.0004)	13.1 (1.90)		0.58 (0.03)	1.42 (0.0375)	Flapping	50
Herring gull (Large Gulls rate)	0.994 (±0.0004)	12.8 (1.80)		0.6 (0.0225)	1.44 (0.03)	Flapping	50
Great Black-backed Gull (Large Gulls rate)	0.994 (±0.0004)	13.7 (1.20)		0.71 (0.035)	1.58 (0.0375)	Flapping	50
Sandwich tern (All gulls and terns rate)	0.991 (±0.0004)	10.3 (3.4)	Defer to Garthe and Hüppop (2004) or where empirical data is available consult SNCB	0.38 (0.005)	1 (0.04)	Flapping	50
Common Gull, Black-headed Gull (small gulls rate)	0.995 (±0.0002)	Consult SNCB		Consult SNCB	Consult SNCB	Flapping	50
Other marine species • (All gulls and terns rate)	0.991 (±0.0004)	Consult SNCB		Consult SNCB	Consult SNCB	Consult SNCB	Consult SNCB

* See note above in Table 1 regarding macro-avoidance

[1] All flight speeds from Alerstam (1997) except for Gannet from Pennycuick (1987) and Sandwich Tern from Fijn and Gyimesi (2018)
[2]All based on Garthe & Hüppop (2004) other than Gannet which is from Furness et al (2018)
[3] All named species from Snow & Perrins (1987)
[4] All named species from Snow & Perrins (1987)

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Annex D – Natural England's Comments on Fisheries Compensation

Natural England has not commented on the colony based measures, as the Applicant recognises these are of limited compensation value to English seabirds.

NE Ref	Topic	Ornithological Comment
1	General comments on the ecological likelihood of success of the proposed compensation measure	Natural England note that the applicant states "*it was clear that the predicted minimum benefit from reducing or removing fishing pressure in SA4 was sufficient to compensate for all predicted impact scenarios*." While Natural England agree that the proposed measure (managing or removing fishing pressure in SA4) is likely to result in benefits to impacted populations of kittiwake, guillemot, razorbill and puffin, we do not agree that the proposed measure will definitely be sufficient to compensate for all predicted impacts of the project. There are uncertainties in the degree of management or closure, uncertainties about the scale of the benefits from the proposed measure, as well as uncertainties about the scale of the predicted impacts on English colonies. As regards to potential increases in sandeel biomass from the proposed measure, Natural England note that there remain considerable uncertainties when it comes to quantifying these. This is due to uncertainties in modelling sandeel populations, particularly in the context of changing environmental conditions such as those caused by climate change. Regarding potential increases in seabird populations from the proposed measure, Natural England note that there remain considerable uncertainties when it comes to quantifying these. This is due to uncertainties about the nature of the relationship between sandeel biomass and seabird demographics, as well as uncertainties in modelling seabird populations. We advise these uncertainties mean that compensation ratios should be set at an appropriately large multiplier to maximise chances of success. They should also be set within clear monitoring and adaptive management plans so that the success of measures can be kept under review throughout the lifetime of the project, and alternative compensatory measures can be introduced if they fail or under-perform. Regarding potential increases in breeding seabird populations at Flamborough and Filey Coast SPA from the proposed measure, Natural England note that there remain considerable uncertainties when it comes to quantifying these. This is due to the distance of the proposed measure from the colony, uncertainties regarding sandeel fishery spillover effects, and uncertainties regarding likely recruitment rates into Flamborough and Filey Coast SPA from other colonies within the meta-population. Note also that Defra has launched a consultation on closure of sand eel fisheries in English waters. Part of SA4 is within English waters and could therefore be subject to closure in advance of any decision being made as regards the suitability of the proposed compensatory measures for Berwick Bank OWF.
2	Quantifying increases in sandeel biomass from the proposed measure	<u>Uncertainties regarding quantifying increases in sandeel biomass from the proposed measure</u>: While reducing or removing fishing pressure is likely to result in increases in sandeel biomass, there are considerable uncertainties when it comes to quantifying those increases. As the applicant states in the report, sandeel populations are constrained by both "bottom-up" processes (availability of

		plankton, itself affected by climate change) and "top-down" processes (predation pressure), with the strength of both of these constraints varying spatially and temporally. The applicant states that "*there is considerable uncertainty in the modelling of short-lived fish such as sandeel*" and that "*there are somewhat contradictory results in the published literature regarding sandeel relationships with zooplankton and with climate warming*" We also note that Poloczanska et al (2004) found that, even with reduced fishing pressure, sandeel populations could still decline, and observe that the Kharadi et al (2022) report cited does not take account of the potential impacts of climate change in its models. All this highlights the need to take a measured approach to quantifying the likely level of benefit to SPA colonies, and the requirement to secure comprehensive monitoring and robust adaptive management proposals should this measure be mandated.
3	Quantifying increases in seabird populations from the proposed measure	<u>Uncertainties regarding quantifying increases in seabird populations from the proposed measure</u>: Natural England note that the applicant has assumed that survival rates of seabird species on the Isle of May are applicable to birds breeding at other colonies. The applicant states that *"it is likely that patterns correlate among colonies as colonies are exposed to the same major drivers of variation".* However, Natural England note that demographic rates are known to vary between colonies (Searle *et al.* 2022).
4	Potential benefits of the proposed measure to kittiwake populations	<u>Potential benefits of the proposed measure to kittiwake populations:</u> Natural England agree that reducing or removing sandeel fishing pressure in SA4 is likely to have benefits for kittiwake populations in the North Sea. However, we highlight that there are uncertainties regarding the likely scale of those benefits. Both Furness et al (2013) and McGregor et al (2022) concluded that closure of UK sandeel fisheries is likely to be an effective compensation measure for kittiwake populations. McGregor et al concludes that closure of UK sandeel fisheries would be the single most effective compensation measure for kittiwake populations at Flamborough and Filey Coast SPA and likely at other North Sea kittiwake colonies. However, it is important to note that McGregor et al (2022) is referring to the closure of all UK sandeel fisheries, which is a far more extensive measure than that being proposed by the applicant (reducing or removing fishing pressure in SA4 only). Note the outcome of the Defra consultation to close sandeel fisheries in English waters will be relevant as regards to the extent to which the proposed measure would provide additional benefits within SA4. Natural England also note that there is considerable uncertainty when it comes to quantifying the potential increases in kittiwake populations from the proposed measure.
5	Potential benefits of the proposed measure to guillemot populations	<u>Potential benefits of the proposed measure to guillemot populations:</u> Natural England agree that reducing or removing sandeel fishing pressure in SA4 is likely to have benefits for guillemot populations in the North Sea. However, we highlight that there are uncertainties regarding the likely scale of those benefits. McGregor et al (2022) concluded that the closure of UK sandeel fisheries would likely benefit guillemot breeding in the North Sea.

		However, they noted that evidence relating specifically to guillemot was limited and the relationship between sandeel biomass and guillemot productivity is relatively weak. It is also important to note that McGregor et al (2022) is referring to the closure of all UK sandeel fisheries, which is a far more extensive measure than that being proposed by the applicant (reducing or removing fishing pressure in SA4 only). Again, the outcome of the Defra consultation referred to above will be relevant.
6	Potential benefits of the proposed measure to razorbill populations	Potential benefits of the proposed measure to razorbill populations: Natural England agree that reducing or removing sandeel fishing pressure in SA4 is likely to have benefits for razorbill populations in the North Sea. However, we highlight that there are uncertainties regarding the likely scale of those benefits. McGregor et al (2022) concluded that the closure of UK sandeel fisheries would likely benefit razorbill breeding in the North Sea. However, they noted that evidence relating specifically to razorbill was so limited that confidence in this assessment was low. It is also important to note that McGregor et al (2022) is referring to the closure of all UK sandeel fisheries, which is a far more extensive measure than that being proposed by the applicant (reducing or removing fishing pressure in SA4 only). Again, the outcome of the Defra consultation referred to above will be relevant.
7	Potential benefits of the proposed measure to puffin populations	Potential benefits of the proposed measure to puffin populations: Natural England agree that reducing or removing sandeel fishing pressure in SA4 is likely to have benefits for puffin populations in the North Sea. However, we highlight that there are uncertainties regarding the likely scale of those benefits. McGregor et al (2022) concluded that the closure of UK sandeel fisheries would likely benefit puffin breeding in the North Sea. However, they noted that evidence relating specifically to puffin was so limited that benefits were difficult to quantify and confidence in this assessment was low. It is also important to note that McGregor et al (2022) is referring to the closure of all UK sandeel fisheries, which is a far more extensive measure than that being proposed by the applicant (reducing or removing fishing pressure in SA4 only). Again, the outcome of the Defra consultation referred to above will be relevant.
8	Potential benefits to seabirds breeding at Flamborough and Filey Coast SPA	Potential benefits to seabirds breeding at Flamborough and Filey Coast SPA Seabirds breeding at Flamborough and Filey Coast SPA are more likely to forage for sandeels in the Dogger Bank sandeel fishery (SA1r) rather than SA4. The applicant states that benefits to birds breeding at Flamborough and Filey Coast SPA are likely to come from increased numbers of recruits from other breeding colonies and spillover effects on local sandeel populations. Natural England note that, as the applicant states, spillover effects are limited due to the sedentary nature of sandeels. Natural England also note that there are high levels of uncertainty regarding the likely numbers of birds recruiting into Flamborough and Filey Coast SPA from other colonies that would result from population increases at those other colonies. The applicant states that kittiwake tend to recruit away from their natal colony. However, a review of kittiwake ringing and colour-ringing studies (O'Hanlon et

		al 2021) found that, while natal dispersal rates were high, they were rarely quantifiable and varied. The majority (79%) recruited into colonies within 100km of their natal colony, with recruitment rates also higher in colonies with high productivity. By comparison, Coulson (2016) found that razorbill were 83% philopatric, but also stated that philopatry probably varies within species and is affected by environmental conditions and population pressures. Therefore it is difficult to predict where recruitment will take place. It will therefore be problematic to advise confidently that measures will benefit features at more remote SPAs such as Flamborough and Filey Coast SPA. However, as compensation is required to maintain the coherence of the SPA network, it may be more straightforward to ensure that proposed measures are sufficient to deliver the required scale of benefit to the network as a whole.
9	Summary of Advice on Compensatory Measures	<u>Summary of Advice on Compensatory Measures</u> Natural England advise that increasing food availability is often the likeliest measure to increase productivity of seabird populations, and therefore is of significant merit as a compensatory measure (McGregor et al. 2022). However, there are many unresolved questions regarding the proposed measure, in connection with, for instance, a) the interaction with proposed fishery closures in English waters; b) the exact scale of ecological response measures could bring to sandeels and seabirds; c) the population dynamics of seabirds and the relative benefits that might be felt at individual SPA and SPA network scale; and d) the extent to which newly available prey resources would be exploited by relevant seabird populations. Natural England advises that the combined uncertainty points towards the need for appropriately large compensation ratios, with comprehensive monitoring (of both sandeel stocks and seabird populations, productivity and diet) coupled with robust adaptive management plans. Therefore we are unable to conclude that the proposed compensation measures will be sufficient to address predicted impacts over the lifetime of the windfarm. Natural England highlights that the guidance for Article 6(4) of the Habitats Directive 92/43/EEC* states that "*compensation ratios of 1:1 or below should only be considered when it is demonstrated that with such an extent, the measures will be 100% effective in reinstating structure and functionality within a short period of time*." * Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence. Opinion of the Commission. 2007/2012 https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/new_guidance_art6_4_en.pdf

NatureScot

NatureScot
NàdarAlba
Scotland's Nature Agency
Buidheann Nàdair na h-Alba

Emma Lees
Scottish Government
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

21 February 2023

Our ref: CNS REN OSWF Berwick Bank – Application

Dear Emma,

BERWICK BANK OFFSHORE WIND FARM

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND MARINE LICENCE UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010

Thank you for consulting NatureScot on the Section 36 and Marine Licence applications submitted by Berwick Bank Wind Limited, which are also accompanied by a derogation package. We appreciate that producing an application for a development of this scale is a huge undertaking and commend the quality of the various assessments provided. This response does not incorporate our advice on the ornithological impacts across the Environmental Impact Assessment (EIA), Report to Inform Appropriate Assessment (RIAA) and derogation package. Thank you for granting an extension to consider these aspects fully.

Our advice detailed in this letter is in relation to the offshore infrastructure (seaward of MHWS) only, as the onshore components are subject to a separate application.

Policy context

As a statutory consultee, NatureScot works in support of the Scottish Government's vision for a Blue Economy[1] with its six outcomes acting as focal points to ensure the marine environment supports ecosystem health, improved livelihoods, economic prosperity, social inclusion and wellbeing. We provide advice in the spirit of Scottish Government's ambition and its aims to balance the promotion of the sustainable development of offshore wind, whilst protecting our biodiversity.

[1] A Blue Economy Vision for Scotland 2022 - https://www.gov.scot/publications/blue-economy-vision-scotland/

Working within the context of a climate emergency and a biodiversity crisis, we wish to provide advice that is enabling and secures the right development in the right place with most benefit for climate change reduction, and takes account of and lessens impacts in respect of the biodiversity crisis.

Proposal

The Berwick Bank offshore wind farm array area is located approximately 37.8 km east of the Scottish Borders coastline and 47.6km east of the East Lothian coastline, making landfall at Branxton substation, Skateraw on the East Lothian coast.

The proposal, which includes a project design envelope approach, comprises:

- Up to 307 wind turbines (up to 355m to tip height);
- Up to ten Offshore Substation Platforms (OSPs) / Offshore Convertor Station Platforms (OCSPs);
- Piled or suction caisson jacket foundations;
- Approximately 1,225km of inter-array cabling and 94km of interconnector cabling;
- Up to eight offshore export cables;
- Up to 10,984m^2 of scour protection per wind turbine and 11,146m^2 per OSP / OCSP;
- An installed capacity of up to 4.1GW with a proposed 35-year operational lifetime.

An additional export cable and grid connection to Blyth, Northumberland, referred to as the Cambois Connection, is being applied for separately. NatureScot provided advice on the Scoping Report for the Cambois Connection in December 2022. We note that the Cambois Connection has been included in the Berwick Bank EIAR as a cumulative project, assessment for which is based on the information presented in the Scoping Report (received for consultation 22nd November 2022).

Background

The proposed Berwick Bank wind farm is located in the outer Firth of Forth, within the Firth of Forth Round Three Zone, which also includes Seagreen offshore wind farm currently being constructed. There are also two consented wind farms within the Forth and Tay area: Inch Cape and Neart na Gaoithe.

Previously, the Berwick Bank wind farm project was one of two separate proposals called 'Berwick Bank Wind Farm' and 'Marr Bank Wind Farm'. Marine Scotland issued a Scoping Opinion for the original Berwick Bank proposal in March 2021, with Habitats Regulations Appraisal (HRA) screening advice in May 2021. This included the direction to submit a derogation case alongside the application (on a without prejudice basis) due to the potential for adverse impacts for a number of designated European site seabird colonies.

Following initial rounds of consultation, these two proposals were combined into Berwick Bank wind farm and Marine Scotland issued an updated Scoping Opinion in February 2022 for this revised design. Due to the revised design and initial short timeline for submission (May 2022), Berwick Bank undertook a roadmap process to discuss and agree aspects of the impact assessment tools and methods. NatureScot was involved in the roadmap process and provided extensive pre-application advice. In June 2022, revisions to the proposal site boundary were announced, which resulted in a reduction in the array area.

Assessment approach

The Project Description (Chapter 3, Volume 1) outlines a 'maximum design envelope', which defines the maximum range of parameters. For instance, a range of wind turbine options are considered, but Chapter 3 presents the maximum parameters only and the coupling of these maximum dimensions is not necessarily a realistic scenario (e.g. maximum number of turbines does not correlate to the maximum size of turbine). For the EIAR, Berwick Bank has discerned the maximum impacts that could occur for each receptor group from these parameters. However, the full suite of parameters is not presented anywhere for the different wind turbine options. The risk is on Berwick Bank, the developer, as to whether the worst-case scenario presented is correct.

Our assessment is therefore based on the impacts presented and those we consider to be a worst-case scenario across each of the receptors. We provide further detail where necessary in the relevant appendices of our advice.

NatureScot advice

Our advice in relation to the ornithological impacts across the EIA, RIAA and derogation package will be addressed separately by our agreed deadline of the 31st March 2023.

We provide detailed advice on each of the other key receptors of concern contained within appendices. We provide our final advice for the key receptors except marine mammals, for which additional information is required as described below.

Marine mammals – additional information required

We welcome the detailed marine mammal impact assessment and the inclusion of various points, which were agreed through the pre-application engagement roadmap process. However, we have identified key concerns regarding the assessment for harbour seals and also the cumulative interim Population of Consequences of Displacement (iPCoD) modelling approach, which require additional information. Specific details of the additional information required can be found in Appendix E.

This information is required in order for us to provide our final marine mammal advice.

We also seek clarification around Unexploded Ordnance (UXO) detonation impact ranges, with specific details in Appendix E, noting however that this would not change the outcome of our advice.

Natural heritage interests

We provide detailed advice on each receptor as described below.

- Advice on physical processes is provided in **Appendix A**.
- JNCC advice on the Firth of Forth Banks Complex Nature Conservation Marine Protected Area (ncMPA) in **Appendix B**.
- Advice on benthic interests is provided in **Appendix C**.
- Advice on fish and shellfish interests is provided in **Appendix D**.
- Advice on marine mammal interests is provided in **Appendix E**.
- Advice on Seascape, Landscape and Visual Impact Assessment (SLVIA) in **Appendix F**.
- Advice on the accompanying Report to Inform Appropriate Assessment (RIAA) in **Appendix G**.

Conclusion

As highlighted, we will advise separately by 31st March 2023 on ornithology and derogation aspects of the application, and note that we have been unable to come to a conclusion for marine mammals, as we require additional information to finalise our assessment. However, for remaining NatureScot interests considered here, based on the EIA assessment undertaken, we conclude that the proposed development (on its own and cumulatively) could be progressed without significant adverse effects. Where appropriate we provide advice on mitigation considerations relevant to the post-consent plan process.

Further information and advice

We hope this advice is helpful. Please contact myself, Caitlin Cunningham or Karen Taylor in the first instance for any further advice.

The advice in this letter is provided by NatureScot, the operating name of Scottish Natural Heritage.

Yours sincerely,

Caitlin Cunningham

Marine Sustainability Advisor, Sustainable Coasts and Seas

caitlin.cunningham@nature.scot

NatureScot ADVICE FOR BERWICK BANK OFFSHORE WIND FARM

APPENDIX A - PHYSICAL PROCESSES

Physical processes are considered in Chapter 7 of the Berwick Bank EIAR.

JNCC advise on offshore MPAs and as such they have provided advice in Appendix B in relation to impacts to the Firth of Forth Banks Complex ncMPA. Therefore, our advice below focuses on potential impacts to other designated sites such as Sites of Special Scientific Interest (SSSIs) and Special Areas of Conservation (SACs) as well as potential impacts outwith designated sites.

Methodology for assessment of effects

The magnitude and sensitivity criteria as defined in Tables 7.11 and 7.12 are in relation to 'coastal features' rather than taking account of the full range of marine and coastal physical process pathways and receptors. Despite this, our advice as provided below has taken account of this wider range.

We have reviewed the Physical Processes Technical Report (Appendix 7.1) and are content with the modelling work and analysis undertaken.

Assessment of significance

Two potential impacts are assessed in relation to physical processes - increases in suspended sediment and changes to hydrodynamics and sediment transport.

Increases in suspended sediment

We agree with the finding that the magnitude of this impact is low at most, and that in physical process terms the sensitivity of the relevant features of the Firth of Forth, Berwickshire Coast, Pease Bay, Barns Ness and St Abb's Head to Fast Castle SSSIs, and Berwickshire and North Northumberland Coast SAC is considered negligible, meaning the effect would not be significant.

Changes to hydrodynamics and sediment transport

We also agree with the finding that the magnitude of these effects is low. The altered patterns of sediment transport around the infrastructure (e.g. Figure 5.33 in Appendix 7.1) could at times create a series of new low-amplitude sand bedforms, but these would be local adjustments to transport, rather than interruptions or changes to overall rates. We also agree that due to the scale of change and the recoverability of sandy bedforms, sensitivity of the relevant features of the SSSIs and SAC named above is negligible in physical terms, meaning that the effects would not be significant.

Clearance of sandwaves and other bedforms

Any potential 'direct impact of the proposed clearance of sandwaves and other bedforms' (up to 20% of the export cable corridor and up to 30% of other cable corridors) was not scoped in and is not assessed. We are content with this approach and agree with the explanation in the EIAR (Table 7.4) that the sandwaves are most likely to be only slowly active and can be expected to recover only over many years.

We also agree that the commitment to undertake landfall by trenchless technique (e.g. HDD) rules out adverse impacts on the Barns Ness Coast SSSI.

Outline Scour Protection Management Plan

We have also reviewed Appendix 22, Annex C - Outline Scour Protection Management Plan. We note that detailed requirements for scour and cable protection will be agreed post-consent as part of the final Scour Protection Management Plan and Cable Burial Risk Assessment, which will be submitted to Marine Scotland for approval prior to construction.

JNCC ADVICE ON BERWICK BANK OFFSHORE WIND FARM

APPENDIX B – FIRTH OF FORTH BANKS COMPLEX NCMPA – MARINE PROTECTED AREA ASSESSMENT (JNCC ref OIA-09195)

JNCC's role in relation to offshore renewables has been delegated to NatureScot. NatureScot is now authorised to exercise JNCC's functions as a statutory consultee in respect of certain applications for offshore renewable energy installations in inshore and offshore waters (0-200 nm) adjacent to Scotland.

JNCC however, maintains responsibility for offshore Marine Protected Areas (MPAs). As such, JNCC have provided the following advice in relation to the Berwick Bank Wind Farm consent application – Marine Protected Area Assessment to NatureScot to provide a view on nature conservation matters related to the Firth of Forth Banks Complex Nature Conservation Marine Protected Area (NC MPA). JNCC have not reviewed other parts of this application and will not be providing comment on parts other than the MPA assessment.

The Firth of Forth Banks Complex NC MPA affords protection to;

- Offshore subtidal sands and gravels and their associated biological communities;
- Ocean quahog aggregations and their supporting habitat;
- the Shelf banks and mounds large-scale feature;
- the Wee Bankie Key Geodiversity Area and consequently the provision of the following ecosystem services.

The NC MPAs Conservation Advice Statements conclude that the *Offshore subtidal sands* and *Ocean quahog* features are considered to be in *unfavourable condition*, whilst the *Shelf banks and mounds* and the *Wee Bankie Key Geodiversity Area* are considered to be in *favourable condition*. In summary, a feature is in unfavourable condition either where evidence indicates one or more of its attributes need to be recovered or where recovery is not considered to be possible through human intervention. Conversely, a feature is in favourable condition where evidence indicates none of the attributes are being adversely affected. Further detail on the individual attributes of each feature and their associated objectives can be found within the Supplementary Advice on Conservation Objectives for Firth of Forth Banks Complex NCMPA (jncc.gov.uk)

JNCC's assessment

There is a wealth of information within the assessment, including numerous tables with various errors and inconsistencies between them. Whilst we appreciate producing an EIA for a development of this scale is a huge undertaking and note that many of the comments JNCC have made during the pre-application process have been addressed, such aspects have not aided our review.

As such we outline that we have based our assessment on the following:

- The overall area of overlap of the proposed development with the whole MPA and its component individual sites as outlined in Table 1.35 and the figures outlined in paragraph 189, stating that the total proposed development array area overlaps with 31.33% of whole NC MPA and the total proposed development export cable corridor overlaps with 13.08% of the whole NC MPA.
- These figures are then used throughout all subsequent assessment of impacts for temporary habitat disturbance (Tables 1.37, 1.38 and 1.40), long term habitat loss

(Table 1.42) and habitat alteration (Tables 1.44. and 1.45) and habitat creation (Tables 1.46, 1.47, 1.48 and 1.49), cumulative temporary habitat disturbance (Table 1.54, 1.55 and 1.56), culminating in the summary Table 1.60.

Temporary habitat disturbance

We are content with how temporary habitat disturbance has been classified and assessed, most notably as it is clarified that any operation involving sand wave and boulder clearance will ensure any material is deposited locally and remains within the NC MPA system (as discussed in Road Map meeting 3 and reiterated in paragraph 202, bullet point 3). We also welcome the commitment in Table 1.59 to monitoring the effects of temporary habitat disturbance to MPA features and the recovery of sand waves in the MPA, which will be secured via the condition of a Project Environmental Monitoring Programme (PEMP). JNCC would welcome early engagement on such monitoring programmes for the NC MPA.

Long-term habitat loss

With regards to how long-term habitat loss has been classified and assessed we have some concerns as these impacts have been separated out from most notably habitat creation. JNCC find it difficult to see a difference between the terms 'habitat creation' and 'habitat alteration' as they are used in the assessment (alteration in connection with decommissioning, habitat creation in the context of leaving hard structures behind following decommissioning of the development).

Overall, JNCC do not agree with the view that the introduction of infrastructure or scour protection in a soft-sediment habitat (offshore sands and gravels) can be described as 'habitat alteration' (e.g. paragraph 291) or 'habitat creation' (e.g. paragraph 337), both of which imply a benefit or positive effect on the local ecosystem by increasing the number of species. There is a difference between naturally occurring increases in biodiversity due to the natural presence of habitat engineers, such as *Sabellaria* or corals, and the increase in number of species that would not naturally occur at a location due to the presence of artificially introduced substrates/ structures. JNCC are of the view that the introduction of artificial substrate renders the naturally occurring offshore sands and gravels unsuitable to the resident benthic communities and thus consists of permanent habitat loss.

Paragraph 297 notes that 'the majority [of habitat loss] will be habitat alteration associated with cable protection for cables and cable crossings which represents a shift in habitat type rather than a total loss of habitat'.

Paragraph 296 states that 'subtidal sands and gravels feature biotopes are typically characterised by infaunal species, and the presence of hard surface foundations and cable protection would not allow for the continued presence of these communities'. The infaunal communities are therefore highly intolerant of changes to a very different substrate type. Epifauna may settle on the introduced hard material, however this will not form a characteristic community of the 'offshore subtidal sands and gravels' habitat and associated biotopes and therefore will not reduce/ mitigate the extent of the habitat loss for the site.

Similarly, it is stated in para 297 that 'epifaunal communities will in time colonise these areas, potentially providing some recovery of communities in areas where cable protection for cables and cable crossings is placed and reducing the extent of long term [sic] habitat loss in the MPA'. This is consistent with the 'conserve' objective of the extent and distribution attribute for this feature.' JNCC are of the view that epifaunal community colonisation will not provide recovery of

the naturally occurring subtidal community. Instead, naturally occurring habitat will be lost and the extent of the protected feature reduced.

We raised these aspects in relation to the assessment of habitat loss in the road map meetings we attended and in written comments. Therefore for our assessment of impacts to the NC MPA we have assessed the combined impact of both long-term habitat loss and habitat creation and consider it **all** to be long term habitat loss. As such, when considering Table 1.60 for example, we consider total long-term habitat loss to be 4.67km^2 (0.22%) of the NC MPA and have utilised this approach throughout our full assessment. Whilst there are some errors in the development calculations in Table 1.55 for cumulative long-term habitat loss with Seagreen, using the figures in Table 1.60 and our combined habitat loss approach increases the cumulative impact to 0.27% of the NC MPA.

Cable protection

Furthermore, with regard to cable protection, no detailed information was provided within the assessment to justify the approach that only 15% of cables would require cable protection. We are aware this was agreed during the roadmap process in meetings that JNCC were not involved in and that the 15% has come from revised estimates from the engineering team and taking into account recent experience within the area (most notably with the Seagreen development).

However, no detailed justification was provided to explain this experience from Seagreen within the NC MPA to aid this short statement and whilst we have reviewed the assessment utilising this figure, we would request Marine Scotland satisfy themselves that there is sufficient justification and evidence for this assumption. Our experience of cable protection use across industries, particularly throughout operation and maintenance operations suggests best case estimates are usually exceeded and as such some contingency in these estimates to assess a worst-case scenario are required.

Decommissioning

Current regulation stipulates that all infrastructure and associated material (such as cable protection) should be removed, and we advise that the decommissioning activities should follow the current Scottish Government guidance (*Offshore renewable energy: decommissioning guidance for Scottish waters*, August 2022). Whilst we agree with the impacts and conclusions made within the assessment on decommissioning, given the level of detail on this aspect available at present, we note that further discussion and assessment will be required when the full decommissioning plan is devised. Our experience from some oil and gas decommissioning plans is that some proposed activities to remove protective material can result in further disturbance and impacts to sensitive features, which is of particular concern given the location of this development within the NC MPA. As such we would request early engagement with the future decommissioning plan and NC MPA assessment.

UXO clearance

We welcome the prioritisation of UXO clearance provided within the assessment to avoid or relocate a UXO where possible. Where clearance is required a low order technique (deflagration) should be used. This is as recommended through the unexploded ordnance clearance joint interim position statement Marine environment: unexploded ordnance clearance joint interim position statement - GOV.UK (www.gov.uk).

However, it is acknowledged that high order detonation may be needed in some limited instances as a contingency, where low noise alternatives are not feasible. This possibility will need to be fully considered to identify potential effects on the features of the NC MPA once further information is known on the location and type of devices across the site. This assessment on NC MPA features in relation to UXO clearance should form part of a consent condition so that a realistic worst-case scenario for high order detonation can be considered in sufficient time before operations commence. We acknowledge that the underwater noise assessment for UXO detonation will evolve post-consent and we are content to discuss details further at the Marine Licence stage.

Conclusion

Based on the above assessment and noting the small overlap of the development within the whole NC MPA alone (0.22%) and in combination with Seagreen (0.27%), the small overlap with the individual component sites of the NC MPA, the evidence provided in relation to significance of impact and suggested conditions and monitoring requirements we agree with the overall conclusion in the NC MPA assessment. **As such, JNCC consider on the basis of the information provided, that whilst the proposal is capable of affecting the protected features of the NC MPA, this is not considered to be significant in accordance with the requirements of the Marine and Coastal Access Act (2009).**

We would however continue to encourage the developer to work to minimise their overall spatial footprint on the protected features of the NC MPA to reduce impacts to features, noting the overall unfavourable condition most notably of the offshore subtidal sands and ocean quahog features. If, for example, the development footprint was to be reduced further for other significant impacts within the EIA assessment, considering this alongside any reduction within the NC MPA would provide wider biodiversity and MPA network benefits. This is particularly relevant noting that at present there are no fisheries management measures in place for this NC MPA, a pressure we know is influencing the site's condition.

Please note Appendix 1 summarises some further minor comments for which a further response would not significantly change the conclusion of our advice, but for which Marine Scotland and the developer should be made aware.

Appendix 1: Minor comments

Scour protection for foundations

Section 1.4.1, p19

JNCC advises against the use of scour material that introduces polypropylene material to the marine environment. This material is unlikely to be recoverable and will over time disintegrate into small plastic fragments, the harmful effects of which have been well documented. From our experience of use of such artificial fronds in the oil and gas sector, their effect as scour protection remains questionable.

Invasive Non-native Species (INNS)

Section 1.7.1, p73

JNCC acknowledge the described mitigations measures to avoid the introduction and spreading of INNS and agree with the conclusion that the introduction of hard substrates carries the risk of such

introduction and spreading. However, we do not agree with the screening out of the risk for INNS for offshore sands and gravels per se. Without the described mitigation measures the risk of introduction and spreading of INNS is the same for potential soft-sediment as for hard-substrate colonising organisms and propagules. Furthermore, it is not in the power of the developer to control the nature of the INNS that could be introduced.

Ocean Quahog

Section 1.7.1

Reproduction of ocean quahog (p64, para 310)

The MPA assessment states, with regards to ocean quahog, that 'the structure of the ocean quahog aggregations is dependent on the continued ability of ocean quahogs to reproduce at the site (para 310). We disagree with this since there is evidence that the structure of the local aggregation is more likely to be maintained by a larval supply from a (or several) source populations. In fact, we do not know whether North Sea quahog populations are reproducing and thereby maintain their own populations or whether they are sink populations maintained only by larval supply from elsewhere. Evidence so far points towards larval supply to UK populations being from elsewhere (see FoF SACO and references therein).

Impacts of colonisation of hard structures on ocean quahog aggregations (p74, para 380 and following)

We do not understand the reasoning behind assessing the impacts of colonisation of hard structures on ocean quahog throughout the lifetime of the development. The main impact on ocean quahog aggregations will be the permanent habitat loss caused by the introduction of hard substrate. Such introduction will render the habitat unsuitable to quahog and an entirely different community will colonise the hard substrate over time. Such (mainly filter-feeding) community is very unlikely to have any effect on ocean quahog aggregations because there will not be an overlap of the two communities and therefore no competition for resources.

Impacts of EMF on ocean quahog (p80, para 436 and 437)

The MPA assessment states that 'Current research, which has a number of knowledge gaps, indicates that ocean quahogs are likely to be affected by EMF and therefore changes to their ability to perform their ecological function is unlikely to occur.' (para 436). We question the validity of this statement based on a) the contradiction of the conclusion drawn in the second part of the sentence based on the content of the first part, and b) following the precautionary principle, that in cases of evidence gaps, a precautionary approach should be taken instead of coming to conclusions for which there is no evidence.

Overall quality of MPA assessment document

The overall quality and therefore 'readability' of the document could have been improved by more careful editing of the final text. There are numerous examples where text has been pasted without consideration of how it fits into the sentence or paragraph it has been copied into. We fully acknowledge the effort in putting the EIA together; however, these numerous errors have made it difficult to assess the information provided in the document. Table 3.1 for example is particularly misleading as the column stating '% Expected to Effect MPA' is not in fact the effect, but the overlap of the development array with the NC MPA used throughout the full assessment.

Navigation of MPA assessment

As commented previously by JNCC, the format of this report is difficult to navigate and read because the only way to move from page to page is to 'jump' with it being impossible to see the end of a page and the start of the consecutive page at the same time.

Use of km^2 instead of m^2

In most of the document the spatial unit of km^2 is used which we welcome. However, there are several tables in the document (e.g., Table 1.37, Table 3.1) where m^2 is used. For the overall clarity of our understanding, we would prefer to see a column added to the appropriate tables providing footprints in km^2 as well as in m^2.

Glossary of acronyms

It would be very useful to have a glossary of the acronyms as part of the MPA assessment (e.g., following the Contents Section or at the end of the document).

NatureScot ADVICE FOR BERWICK BANK OFFSHORE WIND FARM

APPENDIX C – BENTHIC INTERESTS

Benthic interests are considered in Chapter 8 of the Berwick Bank EIAR. JNCC provide specific advice on the Firth of Forth Banks Complex nature conservation Marine Protected Area (MPA) and the associated MPA Assessment in Appendix B. Our advice in relation to Annex I habitats assessed in the accompanying Report to Inform Appropriate Assessment (RIAA) is presented in Appendix G.

Baseline

Section 8.7 provides a clear and detailed summary of existing data and results of site-specific surveys, supported by relevant maps.

Key impacts assessed

We agree with the impacts scoped out of the assessment as outlined in Section 8.2.2.

Section 8.11 details the assessments of significance for each impact scoped in. We note that in Table 8.15, a combination of low magnitude and high sensitivity would give a significance of 'minor to moderate'. In several cases with this combination, a lesser conclusion of 'minor' adverse significance has been identified. The reason for this downgrade is unclear – we raise this as a procedural point rather than ecological as in this instance, due to the very small extent of the study area affected, we agree with the conclusion of minor adverse significance.

Colonisation of hard structures

There is no mention of whether the fouling community on the jacket foundations will be regularly removed during operation. However, we note that for the increased risk of introduction and spread of Invasive and Non-Native Species (INNS), it is stated that removal of encrusted growth may also occur during the operation and maintenance phase (paragraph 392). This will affect colonisation patterns and the loss of biodiversity that has built up, and will have outcomes for the seabed around the foundations where the removed fouling is allowed to fall to the seabed. Paragraph 320 describes deposition of fouling material on the seabed as a positive effect, due to extending and 'enhancing' the reef effect of the infrastructure, but does not mention any negative effects such as anaerobic conditions resulting from decaying matter. We advise that where removed fouling is allowed to fall to the seabed, a Marine Licence may be required. Further consideration regarding impacts from anaerobic conditions and alternative methods of removal may need to be discussed at this stage. This should also be considered further within subsequent revisions of the Invasive Non-Native Species Management Plan.

Electro–Magnetic Fields (EMF)

We note that benthic features both inside and outside of MPAs have been assessed as not sensitive to EMF. We disagree with this conclusion. Studies have shown various levels of sensitivities in a range of species, including responses such as attraction, changes to stress levels, changes to movements, effects on moulting and egg and larval development, etc[2]. We also note that in the Fish and Shellfish Chapter 9, it is acknowledged that some crustaceans are sensitive to EMF, and sensitivity of this receptor is considered to be medium, with a significance score of

[2] Hutchison, Z.L., Secor, D.H. and Gill, A.B., 2020. The interaction between resource species and electromagnetic fields associated with electricity production by offshore wind farms. *Oceanography*, *33*(4), pp.96-107.

minor. Given this, and the lack of knowledge of effects on most benthic species, we advise that the sensitivity of benthic features should be updated to medium. Combined with a magnitude score of low, this would still result in a 'minor' significance, but would better reflect the current lack of knowledge.

Cumulative impacts

The Cumulative Effects Assessment is presented in Section 8.12. We agree with the list of developments considered within the CEA for Benthic Ecology, as outlined in Table 8.33.

We advise that EMF should have been included in the CEA, as the impact is long-term (for the full duration of the lifetime of the wind farm, i.e. 35 years) and there may be cumulative impacts arising from a 'network' of cables in the area even though individually the effects may be localised. We note that EMF is included in the CEA for the Fish & Shellfish Chapter 9, including for decapod crustaceans (with the conclusion of low magnitude, medium sensitivity, giving a minor adverse significance). For consistency, an assessment for benthic species should also have been included. That said, we are content that the assessment would have concluded 'minor' significance as for crustaceans and so would not change the overall conclusion.

Several of the assessments in the CEA find that there is 'moderate' significance in the short-term, reducing to 'minor' in the medium to long-term, and therefore conclude that this is not significant. This conclusion is based on the limited scale of the impacts and the habitat/species' ability to recover. No evidence is provided for this recovery, for example for ocean quahog populations to recover after 10 years. That said, we raise this as a procedural point rather than ecological as in this instance, we are content that the proposal would not lead to a significant impact on the national status of ocean quahog as a Priority Marine Feature (PMF), due to the small and localised extent affected. Moreover, we consider the proposal unlikely to impact recruitment on a national scale, as it is thought that UK waters are likely to be a sink of new recruits, rather than a source[3].

Mitigation and monitoring

We welcome the commitment to engage with NatureScot, Marine Scotland Science, and others regarding strategic monitoring for colonisation of hard structures and the effect of temporary disturbance.

We note that in the Fish and Shellfish Chapter 9, there is a commitment to engage in EMF studies for diadromous fish, we advise this is also extended to benthic species as well, given the current lack of knowledge in this topic. We are aware of Marine Scotland proposals to carry out infield measurement of EMF to better understand impacts on benthic and fish species. Therefore, any input this project could assist with, either from project measurements or contributions to this wider work, that can validate the assumptions in the EIAR and inform future assessments would be very beneficial.

Outline Invasive Non-Native Species Management Plan

We have also reviewed Appendix 22, Annex B – Outline Invasive Non-Native Species Management Plan. We recognise, should consent be granted, that the plan will be updated and finalised before the start of construction following development of the final project design and in consultation

[3] JNCC *Supplementary Advice on Conservation Objectives for Firth of Forth Banks Complex Nature Conservation MPA* https://data.jncc.gov.uk/data/92fb7e5e-5e68-4e66-bde3-afd9c27d6b14/FFBC-3-SACO-v1.0.pdf

with regulatory bodies and stakeholders. We highlight a number of useful guidance resources for review and inclusion in further revisions of this plan:

- Work by the GB non-native species secretariat[4] and in particular the Check Clean Dry campaign, principles from which are likely to be applicable for activities and personnel involved in the operation and maintenance of Berwick Bank offshore wind farm.
- Oil & Gas industry guidance for prevention and management of non-native species[5]. Although aimed at Oil & Gas, there is likely relevance to the offshore renewable industry too.

[4] http://www.nonnativespecies.org/home/index.cfm
[5] https://www.ipieca.org/resources/good-practice/alien-invasive-species-and-the-oil-and-gas-industry/

NatureScot ADVICE FOR BERWICK BANK OFFSHORE WIND FARM

APPENDIX D – FISH (including diadromous) & SHELLFISH INTERESTS

Fish and shellfish are considered in Chapter 9 of the EIAR. Please also see Appendix G for further advice in relation to consideration of diadromous fish interests under HRA.

Baseline

Section 9.7 provides a clear and detailed summary of existing data and results of site-specific surveys, supported by relevant maps.

We note that for diadromous fish species there is limited knowledge of distribution and behaviour of these species in the marine environment. For example, the precise migration routes of adult or juvenile Atlantic salmon or direction taken by emigrating adult European eels is not fully known. Published information indicates that European smelt and River lamprey are primarily, though probably not exclusively, associated with estuarine environments. Shad might also prefer estuarine environments.

Key resources relied on for assessment purposes include Malcolm *et al*., 2010 and Marine Scotland 2018. Both of these reports primarily relate to Atlantic salmon (with some information on sea trout and European eel in the first of these). As a general point, it is disappointing that, in 2023, the key summary document that is being used to describe adult fish movements, and inferred movements of post-smolts and other diadromous species in the coastal areas of south-east Scotland, is still that of Malcolm *et al.* (2010). The salmon fishery statistics, whilst a useful monitoring resource, provide very little about the movement and distribution of Atlantic salmon in the marine environment.

The ScotMER evidence map[6] process for diadromous fish confirms the evidence gaps particularly with respect to spatial and temporal distribution as well as uncertainty around migration routes and connectivity to protected sites. The ScotMER process is an important vehicle for helping to address these evidence gaps and uncertainties.

We also advise that offshore wind developers should be contributing to research as well as other initiatives such as the Wild Salmon Strategy Implementation Plan[7] and any other strategies that are developed for diadromous fish interests.

Key impacts assessed

We agree with the impacts scoped out of the assessment as outlined in Table 9.16.

Assessment of significance

We have reviewed the EIAR with respect to marine fish and shellfish species of conservation importance, including diadromous fish species, and all relevant impacts have been identified and assessed.

We agree with the conclusion for marine fish and shellfish that impacts will be either minor or negligible and based on the available evidence agree with the conclusion of no adverse significant effects.

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[6] https://www.gov.scot/publications/diadromous-fish-specialist-receptor-group/ – published 26 January 2023
[7] https://www.gov.scot/publications/wild-salmon-strategy-implementation-plan-2023-2028/

For diadromous fish we have considered the applicants information and based on our knowledge from previous marine developments consider that this wind farm alone and cumulatively is unlikely to have significant adverse effects, when considered within an EIA context. Please see advice below with respect to consideration of mitigation.

Underwater noise and vibration

Underwater noise and vibration are most likely to affect fish and shellfish species that are not able to move (quickly) away from the disturbance, and includes PMF species such as sandeel, herring and Atlantic salmon. We are content with the underwater noise modelling as presented for relevant fish and support the commitment to implement piling soft start and ramp up measure, which we agree are likely to enable/encourage fish to move away from the activity.

Electro-Magnetic Fields (EMF)

The impact of EMF has been assessed for most fish and shellfish species as negligible to minor and for lobster and elasmobranchs as of minor significance. Recent research as highlighted in the EIAR (paragraphs 236-239) suggests that burial may reduce the strength of the EMF signal emitted by cables due to the distance between the cable and seabed surface. However, there is still uncertainty over whether the EMF level will still be within a biologically sensitive range for epifaunal species and it may still impact on infaunal species.

We are aware of Marine Scotland's proposals to carry out infield measurement of EMF to better understand impacts on benthic and fish species. Therefore, any input this proposal could assist with, either from project measurements or contributions to this wider work, that can validate the assumptions in the EIAR and inform future assessments would be very beneficial.

Mitigation

As part of the Piling Strategy and Cable Plan we would expect consideration to be given to diadromous fish interests. In particular, final details of the route of the export cable and construction should consider key migration periods, duration and construction methods. For the wind farm array itself, the construction method statements should consider habitat disturbance and loss and sediment release. Lastly for both the wind farm and the export cable, consideration of reducing EMF effects should be included as part of the cable plan development.

Cumulative impacts

We have reviewed the cumulative impact assessment in Section 9.12. Overall it is concluded that there will be negligible adverse significant cumulative effects from the proposal alongside other projects/plans. However, noting the issues raised above regarding the evidence base, we consider further work is required across marine industries to address existing evidence gaps.

NatureScot ADVICE FOR BERWICK BANK OFFSHORE WIND FARM

APPENDIX E – MARINE MAMMAL INTERESTS

Marine mammal interests are considered in Chapter 10 of the Berwick Bank EIAR. Our advice in relation to marine mammal interests assessed in the accompanying Report to Inform an Appropriate Assessment (RIAA) is presented in Appendix G.

Marine mammals – additional information required

We welcome the detailed marine mammal impact assessment, however, we have identified key concerns regarding the assessment where we require additional information, including:

- **We request that either the harbour seal assessment is revised to include the updated Whyte et al. 2020 dose response information, or evidence is provided to support the Russell et al. 2016 information being more precautionary.**
- **We request that the 10% reducing to 1% Conversion Factor (CF) scenario is included in the interim Population of Consequences of Displacement (iPCoD) cumulative assessment.**

This information is required in order for us to provide our final marine mammal advice.

We also request the following clarification around UXO detonation impact ranges, noting however that this would not change the outcome of our advice:

- **For the low order 0.5kg charge (Table 10.46, Chapter 10), the very high frequency (VHF) hearing group has the largest Temporary Threshold Shift (TTS) SELweighted range of 3.1km of all the hearing groups. We query whether this is correct as we might expect the low frequency (LF) hearing group to have the larger impact range.**

Baseline

Section 10.7 in Chapter 10 provides a clear and detailed summary of existing data and results of site-specific surveys. We have no substantive comments on the baseline data that would affect the conclusions of the EIAR. However, we provide the following advice below for information.

We have reviewed the accompanying Aerial Survey Data in Appendix 10.2 Annex A and note that all unidentified seals are categorised as grey seals, due to grey seals being the most commonly identified species. We advised against this approach during the roadmap process, as we cannot verify that these are indeed grey seals and this approach may bias the outputs. In fact, we advised that digital aerial surveys are not suitable for seals as they are difficult to see and identify to species. However, we note that the Carter et al. (2020) usage maps have been used in the actual assessment within Chapter 10. We are therefore content that our advice has been followed for the assessment.

Likewise, all unidentified cetaceans have been classed as harbour porpoise. Again, we advised against this approach during roadmap meetings. These site-specific densities were used in the assessment in Chapter 10, however, this provides a more precautionary approach than using the SCANS densities as advised (site-specific density = 0.826 animals per km^2, SCANS density = 0.599 animals per km^2). Our advice is based on this more precautionary approach.

Assessment approach

Table 10.16 in Chapter 10 presents the maximum design scenario used for the marine mammal assessment, based on the 179 x 24MW wind turbine option, with up to four legs per foundation and up to two piles per leg for each wind turbine generator (WTGs). The maximum scenario for

concurrent piling is a maximum of two piling events at any one time. We note that the piling duration for the 179 x 24MW turbine option is presented in Table 10.16, but the equivalent numbers are not provided for the other turbine option(s) e.g. 307 x 14MW. The full suite of parameters for the different wind turbine options is not presented anywhere within the EIAR – for example Table 3.2 in Volume 1 Chapter 3 Project Description – provides the maximum design figure for each individual parameter described irrespective of the turbine option.

Smith et al. (2019)[8] found that a number of parameters (e.g. number of residual days of disturbance, the size of the population, etc) influence the overall cumulative impact derived from iPCoD. Therefore, it is possible that cumulatively (i.e. over the whole duration of piling), a higher number of piling events (which may be associated with the 307 smaller (14MW) turbine scenario) may have more of an impact on survival and fecundity, and therefore population size. Although the noise levels from each piling event may be lower, the fact that there are more turbines, and therefore the overall piling duration may be longer, may have greater long-term effects. Berwick Bank have not presented any evidence as to whether this would result in greater population level impacts for marine mammals compared to the 179 x 24MW turbine scenario.

The 179 x 24MW scenario is expected to produce the highest level of underwater noise, and when modelled, will predict the worst-case impact ranges for both PTS and disturbance. Therefore, we have based our advice on the 179 x 24MW scenario as the worst-case scenario, noting the uncertainty highlighted above. We acknowledge that the turbine parameters (e.g. number and size) may change post-consent the build out parameters used in the Piling Strategy.

Disturbance risk

In our original scoping advice (issued 7th October 2020), we advised that dose response information is available for harbour seal (Russell et al. 2016)[9] with updated information available from Whyte et al. 2020[10]. However, the updated information has not been used in the Berwick Bank assessment. **We request that either the assessment is revised to include the updated Whyte et al. 2020 information or evidence is provided to support the Russell et al. 2016 information being more precautionary.** We require this information to provide our final marine mammal advice.

Underwater noise impact assessment

Construction

The noise modelling approach is based on the installation of 5.5m diameter piles, with the maximum hammer energy of 4,000 kJ and a realistic worst-case hammer energy of 3,000 kJ. These represent the 179 x 24MW turbine scenario.

The modelling approach taken is comprehensive, and we are content that our advice has been followed as discussed during the roadmap process. The underwater noise assessment has also been reviewed by a third party, included as Appendix 10.1 Annex H. This review concludes that the approach taken is appropriate and logical based on the information presented. Whilst we agree

[8] Smith, H., Carter, C. & Manson, F. 2019. Cumulative impact assessment of Scottish east coast offshore windfarm construction on key species of marine mammals using iPCoD. *Scottish Natural Heritage Research Report No. 1081.*
[9] D, J. Russell et al. 2016. Avoidance of wind farms by harbour seals is limited to pile driving activities. *Journal of Applied Ecology.* https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/1365-2664.12678
[10] Whyte et al. 2020. Estimating the effects of pile driving sounds on seals: Pitfalls and possibilities. *JASA* https://doi.org/10.1121/10.0001408

the approach is thorough, we consider that this third party review does not add independent support, particularly as to the level of Conversion Factor (CF) that is realistic in the field.

The impact predictions taken through to the assessment are based on the 4% reducing to 0.5% CF. However, we welcome the inclusion of a range of CFs as presented in Appendix 10.5, Conversion Factors – Marine Mammals Supporting Information.

Notwithstanding the information provided, we remain of the view that there is considerable uncertainty relating to the choice of appropriate CF. We highlight that there is currently a ScotMER programme of work reviewing the CF methodology used in underwater noise models. The recommendations from this particular work may inform our future advice in terms of noise modelling approaches.

Our advice has therefore taken into consideration the impact predictions derived from the range of CFs, including those using the 10% constant CF. Despite the choice of CF affecting impact ranges and numbers of individuals at risk of auditory injury and disturbance, it does not, in our view, affect the EIA conclusions presented for the significance of impacts.

We have also reviewed Appendix 10.1 Subsea Noise Technical Report. In Table 7.9, cumulative ranges (SELcum) are presented for injury and disturbance. The worst-case Permanent Threshold Shift (PTS) range is 1km and the worst-case disturbance range is 43km for the LF hearing group. In Table 7.16, cumulative ranges (SELcum) are presented for injury and disturbance for two locations piled simultaneously. The worst-case PTS range is 2.3km and the worst-case disturbance range is 55km for the LF hearing group. We note that the maximum PTS onset range for the LF hearing group of 2.3km is taken forward to the impact assessment and used in the proposed pre-piling mitigation.

We advised during the roadmap process that PTS ranges used for pre-piling mitigation should be based on the instantaneous risk (SPLpk or SELss) and not cumulative (SELcum) metrics and note that Appendix 10.5, Conversion Factors – Marine Mammals Supporting Information presents the injury ranges using SPLpk as requested. The maximum instantaneous PTS injury range is predicted for the constant 10% CF for harbour porpoise at 1,519m (for one location piled), which is smaller than the proposed mitigation zone of 2.3km. Therefore, in this case, we are able to provide advice without requesting further information – see below under iPCoD modelling.

We note that the range of potential SELcum PTS onset for minke whale highlights a risk for four individuals. Likewise, five individuals are predicted for harbour porpoise. Our comparison suggests that the choice of CF, although affecting impact ranges and numbers of individuals at risk of auditory injury and disturbance, does not affect the conclusions presented for the significance of impacts under EIA Regulations.

Unexploded ordnance (UXO) detonation

We note that Berwick Bank has committed to using low noise alternatives, which is in line with the current joint UXO clearance guidance[11]. Impact range estimates for both low order donor charges and high order detonations using 300 kg charge weight as a worst-case scenario are provided in Tables 10.42, 10.43, 10.46, and 10.48.

[11] Joint statement on UXO Clearance - https://www.gov.uk/government/publications/marine-environment-unexploded-ordnanceclearance-joint-interim-position-statement/marine-environment-unexploded-ordnance-clearance-joint-interim-position-statement

We note that for the low order 0.5kg charge, the VHF hearing group has the largest TTS SELweighted range of 3.1km of all the hearing groups. We query this as we might expect the LF hearing group to have the larger impact range (as it does in the 300kg case). **Whilst this does not change the outcome of our advice, we would like to clarify this point.** We acknowledge that the underwater noise assessment for UXO detonation will evolve post-consent and will be considered further as part of the EPS licencing process.

Population level effects

In addition to the Cumulative Effects Assessment in Section 10.12, we have also reviewed Appendix 10.4 Marine Mammals iPCoD Modelling Report. The latter presents the iPCoD modelling for scenarios for the following CFs: 10% reducing to 1%, 4% reducing to 0.5%, and constant 1%.

It is assumed under all CF scenarios that mitigation will reduce the risk of PTS to zero, and so the modelling only incorporates the effects of disturbance. The one exception to this is for minke whale under the 10% reducing to 1% scenario, where one animal was predicted to experience PTS even with mitigation in place. Given the level of risk and proposed mitigation, we do not consider that an EPS licence for injury is likely to be required.

For the cumulative iPCoD model, only the 1% CF was modelled for Berwick Bank, with the reason given that 'this represented the maximum spatial effect range'. This accords with our understanding, that by using the SELss metric and looking across the piling duration, the constant 1% CF gives the worst-case scenario, when compared to the reducing 4% to 0.5% CF. In the latter scenario, the 4% CF is applied at the beginning of piling with the soft start hammer energy. As the pile descends into the sediment, the CF reduces and by the time the full hammer energy is reached, the CF is 0.5%. Therefore, of the two scenarios, we agree that the 1% constant CF returns the larger prediction.

However, due to the high uncertainty around the suitable choice of CF, we previously advised during the roadmap process that the 10% reducing to 1% CF scenario should also be used in the cumulative assessment. These results have not been provided.

We request that the 10% reducing to 1% CF scenario is included in the iPCoD cumulative assessment. We are unable to provide our final marine mammal advice until this additional information is presented. Depending on the results of this further iPCoD modelling, we may recommend the consideration of Noise Abatement Systems.

We are content that the spatial range and timescales of the other projects included in cumulative assessment are appropriate.

Operation and Maintenance

We are still at an early stage in our understanding regarding the operational noise from fixed offshore wind farms, as there are uncertainties due to the lack of measured data. For instance, the desktop study provided in Table 7.23 of the Appendix 10.1 Subsea Noise Technical Report only highlights measurements from monopiles, with a maximum power output of 5MW. Therefore, we recommend operational noise monitoring is undertaken to inform knowledge in this area.

We note that the maintenance activities (e.g. jet cutting and vessel activity) were not predicted to produce noise levels sufficient to cause injury. However, the disturbance impact ranges for jet cutting are large at 25km and may need to be considered under European protected Species (EPS) licencing requirements.

Mitigation and monitoring

Good Environmental Status

We highlight the increasing trend in underwater noise within the marine environment. In particular, how much an array may raise the general background noise levels within an area (in concert with other sources that could impact on indicators of Good Environmental Status). Reducing additional underwater noise would be beneficial to multiple receptors, including marine mammals, benthic interests, and fish and shellfish. We note that Noise Abatement Systems are not considered within the proposal design or assessment for piling as outlined in Chapter 10. However, we would welcome further consideration of Noise Abatement Systems for noisy activities, such as impact piling.

Piling

We have also reviewed Appendix 23 Outline Marine Mammal Mitigation Protocol (OMMMP). We agree in principle with the proposed OMMMP, but recommend that further detail be discussed as part of the Piling Strategy consultation process. Likewise, the UXO and geophysical/geotechnical impacts will need to be revisited through the EPS licencing process and MMMP once construction design details are further refined.

We note that the pre-piling mitigation is based on the worst-case PTS range (4% reducing to 0.5% SELcum for the LF hearing group) of 2,319m. We agree that the estimation of PTS onset using SELcum metric is highly precautionary and agree with the reasons given in paragraph 15. Due to the uncertainties around SELcum, our advice to date has been that the pre-piling mitigation zone should be based on the worst-case instantaneous risk (highest hammer energy, highest CF calculated using SPLpk or SELss). Using the information provided in Appendix 10.5, the worst-case instantaneous SPLpk range is in the order of 1.5km for the VHF hearing group. The proposed mitigation zone based on the SELcum (2,319m) extends greater than this worst case scenario range of 1.5km.

Based on our experience from the construction of offshore wind farms in the Moray Firth, we advise, ADDs would not need to be active for as long as 30 minutes. A balance between injury risk and disturbance should be considered when developing the Piling Strategy. This is based on the work in the Moray Firth - Thompson et al. (2020)[12] found that within the 3 hours following a 15 minute ADD playback (Lofitech) (no piling, ADD use only), there remained a 50% probability that there was a harbour porpoise response within 21.7 km. The minimum return time was also found to be >2 hours for monitoring sites within 1 km of the playback location.

UXO clearance

The OMMMP for UXO clearance presents a standard hierarchy of mitigation that includes, avoiding the UXO (*i.e*. construct around), relocating the UXO, and detonating if needed, with the preference for lower noise alternatives stated. We acknowledge that the pre-detonation mitigation proposed follows standard JNCC guidance. However, we advise that three MMOs are required to enable effective visual observation over the 1km mitigation zone. This is an increase from the minimum of two recommended in the JNCC guidance and is required to ensure adequate

[12] Thompson P.M., Graham I.M., Cheney B., Barton T.R., Farcas A., & Merchant N.D. 2020 Balancing risks of injury and disturbance to marine mammals when pile driving at offshore windfarms. *Ecological Solutions and Evidence. DOI: 10.1002/2688-8319.12034*

coverage and visibility over the full mitigation zone due to the type (size/height) and location of the vessels used for clearance.

We advise that scare charges should not be employed for marine mammal mitigation. Scare charges can introduce significant noise into the environment (Robinson *et al*., 2022[13]), and there is a lack of evidence showing that they enhance protection for marine mammal purposes. The use of low noise alternatives (to high order detonation) should make scare charges redundant. However, mitigation should be designed to protect in the event of a high order detonation. We do not recommend the complete removal of scare charges, for depths that currently restrict the use of noise abatement methods, but that they are used at charge sizes suitable for fish mortality mitigation.

Geophysical surveys and other activities

In principle, we agree that the use of standard JNCC guidance for geophysical activities will mitigate injury risk from site investigation surveys. We can offer more detailed advice once construction details are further refined.

We are content that mitigation is not required for other activities, including cable trenching, cable laying, or jack-up activity. This is because mitigation is most suited to the avoidance of injury. It is clear that disturbance is likely for all these activities, which will need to be considered under EPS licencing requirements.

Underwater noise monitoring

We recommend that further monitoring is discussed post-consent, during the consultation on the Piling Strategy. Any monitoring should include contours of predicted noise levels (received levels) at 750m to enable comparison to in-field noise levels. These should be generated from the same model used within the EIAR to predict impacts and encompass all CFs as modelled.

Seal colony counts

We note that in the RIAA – Part 2 – SAC Assessments, the duration of piling could potentially overlap with a maximum of five breeding cycles for grey seal and harbour seal. During the breeding season, grey seal mothers will not travel much further than 20km from the colony whilst foraging, and are therefore restricted in their ability to forage elsewhere. There is uncertainty around how seals may react to this potential disturbance, either individually or at a population level. We recommend Berwick Bank contribute to SAC monitoring through the Sea Mammal Research Unit (SMRU) survey programme to support additional surveys in the region, which would allow annual surveys to take place during and post-construction. This request for a contribution is to enhance the monitoring programme and aid understanding to help support future applications.

[13] Robinson et al. 2022. Acoustic characterisation of unexploded ordnance disposal in the North Sea using high order detonations. *MS submitted to Marine Pollution Bulletin.*

NatureScot ADVICE FOR BERWICK BANK OFFSHORE WIND FARM

APPENDIX F - SEASCAPE, LANDSCAPE AND VISUAL IMPACTS

Seascape, Landscape and Visual interests are considered in Chapter 15 of the Berwick Bank EIAR.

We advise that the proposal does not raise any adverse effects on any National Scenic Areas or Wild Land Areas. Therefore, our advice below focusses on potential significant effects on Scottish landscape, seascape, visual and cumulative effects.

Potential significant landscape and visual effects

This proposal is at an unprecedented scale for offshore wind as an individual project within Scottish waters and will add considerably to existing cumulative impacts from the consented Forth and Tay windfarms (Inch Cape, Seagreen and Neart na Gaoithe).

A comparison of blade tip, hub height and horizontal angle visibility (Figures 15.5, 15.15 and 15.8) indicate similar extents of visibility, mainly concentrated on the semi-circle of landform formed from the outer firths, from Aberdeenshire in the north around Fife Ness and East Neuk to the East Lothian coast around Tyninghame and down towards the Scottish Border in the south. Some visibility is theoretically possible from the hinterland though it tends to be constrained by topography, screening and the effect of distance decay (i.e. at distances greater than 45km). Almost continuous visibility is predicted from Tyninghame Bay along the coast to the English Border. Reviewing the Horizontal Angle ZTV (Figure 15.8) indicates from terrestrial viewpoints that the proposal would largely be visible as a 20-40 degree proportion of the view.

The EIAR states that there would be significant daytime effects on 2 out of the 12 coastal character areas within the study area. These are:

- SA18 - Torness Point to St Abb's Head
- SA19 - St Abb's Head to Eyemouth

These coastal character areas include the following special landscape areas (SLAs), also predicted to receive significant effects:

- Thorntonloch to Dunglass Coast SLA
- Berwickshire Coast SLA

The EIAR predicts that of the 23 representative viewpoints assessed, there would be significant daytime effects on four of them, lying at distances between 38.2km - 40.4km from the proposal. All four of the viewpoints are located within the Scottish Borders Council area and within the Berwickshire Coast SLA. These locations are:

- VP13 Fast Castle
- VP14 Tun Law
- VP15 St Abb's Head (a significant night time effect is also predicted at this location)
- VP16 Eyemouth

Significant effects are predicted in the EIAR for recreational users of the Berwickshire Coastal Path between Dowlaw to St Abb's and St Abb's to Eyemouth. In terms of visual effects from settlements, Eyemouth and St Abb's are the only settlements where viewers would be likely to receive a significant visual effect.

We agree with the assessment of significant landscape and visual effects as described above. There is a coalescing of significant landscape and visual effects in the area along and from within the Berwickshire Coast SLA, where the whole proposal would be visible at the closest part of the coastline to the proposal at around 38km. The views out to the open sea and dramatic headlines are key components of the view and characteristic of this area of coastline.

The introduction of lighting as required for the proposal into a largely dark baseline (the headland from St Abb's to Fast Castle) will be significant, not just causing adverse visual effects, but also significant and adverse effects on the Berwick Coast SLA as noted in the EIAR. This effect appears to be most acute where there are clear views of the full elevation of the turbines and the majority of the lights would be visible, with low levels of night time light pollution present in the baseline (Figure 15.14).

Having reviewed the Outline Lighting and Marking Plan (Appendix 27) in conjunction with the Seascape, Landscape and Visual Chapters and Appendices, we agree with the requirement for the production and implementation of a Lighting and Marking Plan. We note that on Figure 15.15 it shows that only the peripheral turbines will be lit with aviation warning lights. However, it is unclear from the Outline Lighting and Marking Plan which peripheral turbines will be lit. We note that these requirements will be finalised when a final wind turbine layout is established. This may be an aspect that could help reduce effects on the Berwick SLA and associated significant visual night time effects.

This proposal in addition to Neart na Gaoithe located to the west of the proposal, Inch Cape and Seagreen 1 located to the north, mitigates some of the effects of the proposal. This is particularly in views from the north and northwest as the proposal would be viewed behind these developments.

In views from the south-east coast, the proposal would be viewed as an additional development strung out along the horizon from, for example, North Berwick Law (VP7), Tantallon Castle (VP8) and Tyninghame (VP9), though noting the mitigation effect that distance would have, as the Neart na Gaoithe development is significantly closer to these viewpoints (c. 25-30km) than the proposal (around 40-56km).

From those viewpoints where a significant effect is predicted, both Neart na Gaoithe and the proposal would be viewed together on the skyline at similar distances. For example, from VP13 Fast Castle, Neart na Gaoithe is 31km and Berwick Bank is 40km. Although there is a wide open horizon, the presence of these wind farms will mean a significant proportion of the view would be occupied by offshore wind development, though noting the mitigating effects of the distances involved.

Cumulative landscape and visual effects

Three cumulative scenarios were assessed within Section 15.12 of the EIAR using a tiered approach. Significant cumulative visual effects are predicted to occur within the Tier 1 assessment at VP11 Skateraw and from representative Viewpoints 1, 5 and 6 in relation to the 'whole project effect assessment'. In terms of landscape and coastal character, one significant effect was predicted on the Coastal Margins landscape character type, in relation to the direct and indirect effects of the onshore part of the proposal, with the contribution of the offshore development not being significant. No significant cumulative effects were predicted for the proposal within the assessments for Tier's 2-4**.**

We agree with the predicted level of cumulative effects as detailed in the EIAR.

Conclusion

In summary, we agree with the assessment that there would be significant adverse effects on receptors (coastal and visual) both during the day and, within the area between Fast Castle and St Abb's Head, additionally into the night. These significant adverse effects are concentrated along an approximately 20km stretch of coastline within the Scottish Borders Council area to East Lothian impacting the coastal edge of both Berwick Coast SLA and Thorntonloch to Dunglass Coast SLA.

Should the proposal be consented, we would wish to have further discussions to explore further the final layout to potentially reduce the above significant and adverse effects, in consultation with other relevant parties.

NatureScot ADVICE FOR BERWICK BANK OFFSHORE WIND FARM

APPENDIX G – HABITATS REGULATIONS APPRAISAL – REPORT TO INFORM APPROPRIATE ASSESSMENT

We have reviewed the Report to Inform Appropriate Assessment (RIAA) – Part 2 – Special Area of Conservation (SAC) Assessments for the proposed Berwick Bank offshore wind farm. We provide advice, as outlined below, on those European sites and their qualifying features that have been screened in at the likely significant effect (LSE) stage, either alone or in-combination with other plans or projects.

Our response does not incorporate our advice on the ornithological interests, including the RIAA – Part 3 – Special Protection Area (SPA) Assessments. We will provide advice for ornithology separately by the 31st March 2023.

Annex I habitats

The Berwickshire and North Northumberland Coast Special Area of Conservation (SAC) is the only protected site included in the RIAA for Annex I habitats, with the qualifying features listed in Table 5.6. The approach to assessment is well presented.

We agree with the conclusions for all Annex I habitats that there is no adverse effect on site integrity.

Diadromous fish

The following protected sites are considered in the RIAA for diadromous fish, following advice provided during pre-application:

- Tweed Estuary SAC (sea and river lamprey);
- River Tweed SAC (Atlantic salmon, sea and river lamprey);
- River South Esk SAC (Atlantic salmon and freshwater pearl mussel);
- River Tay SAC (Atlantic salmon, sea and river lamprey);
- River Dee SAC (Atlantic salmon and freshwater pearl mussel); and
- River Teith SAC (Atlantic salmon, sea and river lamprey).

Freshwater pearl mussel have also been considered, as part of their life stage is reliant on Atlantic salmon and / or seat trout, and there is the potential for them to be indirectly impacted by the proposal.

Assessment Approach

During the previous round of offshore wind farm applications it was acknowledged that there was an absence of research and evidence to assist in the assessment of impacts and conclusions in respect of appropriate assessment. Our knowledge of diadromous fish, distribution and behaviour in the marine environment is extremely limited preventing our ability to advise on connectivity and therefore impacts to populations within natal rivers (a necessary step within HRA assessment process). The recently updated ScotMER Evidence Map[14] confirms these remaining gaps and uncertainties, and we have concluded that, based on evidence currently available to us, it is not possible for us to carry out an assessment of diadromous fish to the level required under HRA.

[14] https://www.gov.scot/publications/diadromous-fish-specialist-receptor-group/ – 26 January 2023

Meanwhile, we are working with the ScotMER Evidence Map receptor group on identifying research proposals that could address these knowledge and evidence gaps including the recently commissioned project on 'Diadromous fish in the context of offshore wind – state of the science and future research'.

The RIAA has attempted to assess impacts across the following impact pathways including: temporary subtidal habitat loss / disturbance; increased suspended sediment concentrations and deposition; underwater noise and vibration; long term subtidal habitat loss; electro-magnetic fields and colonisation of foundations, scour protection and cable protection. We consider these impact pathways have been correctly identified, although which sites/features will be affected by which impact is uncertain at this stage.

Assessment conclusions

Due to the absence of robust evidence about the behaviour and distribution of these species in the marine environment, as indicated above, we cannot advise on these species under the HRA process. We have reviewed the information provided within both the RIAA and EIAR and consider that this wind farm alone and cumulatively is unlikely to have significant adverse effects, when considered within an EIA context. Having considered the applicants information and based on our knowledge from previous marine developments, we advise that mitigation can be deployed to reduce any potential effects from both the construction and operation of the wind farm, inter-array and export cables.

We will continue to advocate within the ScotMER process for research proposals to increase the knowledge and evidence base from which to inform assessments. We also advise that offshore wind developers should be contributing to research as well as other initiatives such as the Wild Salmon Strategy Implementation Plan[15] and any other strategies that are developed for diadromous fish interests.

Mitigation

As part of the Piling Strategy and Cable Plan we would expect consideration to be given to diadromous fish interests. In particular, final details of the route of the export cable and construction should consider key migration periods, duration and construction methods. For the wind farm array itself, the construction method statements should consider habitat disturbance and loss and sediment release. Lastly for both the wind farm and the export cable, consideration of reducing EMF effects should be included as part of the cable plan development.

Marine mammals

For marine mammals, the following protected sites are considered in the RIAA:

- Berwickshire and North Northumberland Coast SAC (grey seal);
- Isle of May (grey seal);
- Firth of Tay and Eden Estuary SAC (harbour seal);
- Southern North Sea SAC (harbour porpoise); and
- Moray Firth SAC (bottlenose dolphin).

We agree with the protected sites assessed for marine mammals in the RIAA, apart from the Southern North Sea SAC. We consider that in the context of the Berwick Bank proposal, the

[15] https://www.gov.scot/publications/wild-salmon-strategy-implementation-plan-2023-2028/

activities would not extend to impacts within the Southern North Sea SAC. Natural England's advice should however be sought on the Southern North Sea SAC if required.

As highlighted in our marine mammal advice - Appendix E to this letter, we require additional information in order for us to provide our final advice in relation to the protected sites in Scotland included in the RIAA for marine mammals. This additional information includes the following:

- **We request that either the harbour seal assessment is revised to include the updated Whyte et al. 2020 dose response information, or evidence is provided to support the Russell et al. 2016 information being more precautionary.** This is required in order for us to provide final advice on the Firth of Tay and Eden Estuary SAC where harbour seal is a qualifying feature.
- **We request that the 10% reducing to 1% Conversion Factor (CF) scenario is included in the interim Population of Consequences of Displacement (iPCoD) cumulative assessment.** This is required in order for us to provide final advice on the in-combination effects for any marine mammal qualifying features of the Scottish protected sites considered.

Baseline

Please note for the Firth of Tay and Eden Estuary SAC, the population estimate is 41 individuals (SCOS, 2020) and that the site is currently 'unfavourable, declining'. Section 7.6.3 in the RIAA – Part 2 – SAC Assessments uses this figure but we note that it has not been reflected in the JNCC site detail webpages or Section 1.9 of the RIAA - Part 2, Appendix 2A - European Sites Summaries for SACs where a population figure of 600 is used.

Similarly, for the Moray Firth SAC, we advised in our scoping response (issued December 2021) that a weighed mean population size for bottlenose dolphin of 224 is used as per section 7.6.5 of the RIAA – Part 2 – SAC Assessments. This update has not been reflected in the JNCC site details webpages or the RIAA - Part 2, Appendix 2A - European Sites Summaries for SACs.

Assessment approach

We note that for grey seal, harbour seal and bottlenose dolphin in the RIAA – Part 2 – SAC Assessments document, part of the justification for concluding no adverse effect on site integrity is that the noise contours from the noise modelling do not extend into the protected sites (e.g. paragraphs 1417, 1665). We do not agree with this justification because individuals from these SACs are protected whether they are inside or outside the protected site. However, we raise this as more of a procedural point than ecological, as in this case, consideration is also given to animals outside the protected sites.

Assessment conclusions

We agree with the conclusions that there is no adverse effect on site integrity for all Scottish protected sites with marine mammal qualifying features, except for the Firth of Tay and Eden Estuary SAC where additional information is required.

We are unable to provide our final marine mammal advice, specifically in relation to the in-combination effects for any of the protected sites with marine mammal qualifying features until additional information is presented.

Monitoring

In Appendix E, we advise that a contribution to the monitoring of seal breeding sites by the developer if the application is consented, would assist in increasing our knowledge of site selection and use over time. This request for a contribution is to enhance the monitoring programme and aid understanding to help support future applications.

As indicated above, we request further information on the conversion factor and its use in the iPCoD to provide our final advice.

Conclusion

We agree with the conclusions of no adverse effect on site integrity under HRA for the Scottish protected sites assessed for Annex I habitats. We will provide our final advice with respect to marine mammals once the additional information has been received. We cannot advise on diadromous fish under the HRA process due to the absence of robust evidence about the behaviour and distribution of these species in the marine environment.

NatureScot
representation on derogation

NatureScot
Scotland's Nature Agency
Buidheann Nàdair na h-Alba

Emma Lees
Scottish Government
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

03 April 2023

Our ref: CNS REN OSWF Berwick Bank – Derogation

Dear Emma,

BERWICK BANK OFFSHORE WIND FARM

DEROGATION UNDER ARTICLE 6(4) OF THE HABITAT DIRECTIVE

Thank you for consulting NatureScot on the derogation package submitted by Berwick Bank Wind Limited and for granting an extension to the consultation deadline. This response incorporates our advice with respect to the derogation package only. The derogation package relates to the offshore wind farm proposal comprising a project design envelope approach, which includes up to 307 wind turbines (tip height 355m) with an installed capacity of 4.1GW and proposed 35-year operational lifetime.

In our response sent to Marine Scotland on 21 February 2023, we provided advice on all receptors for which we have a remit with respect to the EIA and RIAA, other than for ornithological interests. Our advice on the ornithological impacts within the wind farm application is provided in a separate response letter dated 31 March 2023.

The level of predicted impacts to ornithological interests due to the proposed development are such that we have objected to the proposal. The scale of predicted impacts is largely driven by the extremely high densities of seabirds using the proposed development site.

We have objected irrespective of the derogation package submitted in conjunction with the proposal, as per the requirements of the Habitats Regulations.

Derogation cases in Scotland are uncommon and this is the first case in the marine environment. NatureScot engaged in the derogation roadmap process and provided extensive pre-application advice. This process was extremely helpful and aided our understanding of the likely contents of the package subsequently submitted as part of the application process. We welcome and recognise the effort that has been put into pulling together the derogation case by the developer and their consultants. The focus of our derogation advice is solely on the ecological considerations with respect to the package of measures provided within the consultation. We do not provide any commentary on the technical or legal feasibility of securing the compensation proposed, recognising that the key component, the sandeel fishery closure, is

likely to involve multiple parties, including the Scottish Government. Lastly, our advice on additionality is provided only with respect to our understanding of on-going site management.

NatureScot advice

This is the first offshore wind proposal which has required consideration of such significant levels of compensation reflecting the importance of the development site to many seabird colonies.

We commend and acknowledge the effort that the applicant has undertaken in developing the derogation package. However, **due to limitations in the information provided and the overall scope of the package at this stage, we are unable to conclude that the proposed compensation measures will be sufficient to address predicted impacts over the lifetime of the windfarm**.

We agree that increasing sandeel availability would provide the best chance of increasing seabird populations likely to be affected by the proposed development, due to increased survival, or a combination of increased survival and productivity. However, there is substantial uncertainty around the timing of when benefits to seabirds from the proposed closure of SA4 would be delivered. This relates to the gap between cause and effect, linked to the age of sexual maturity of seabirds (between 4-6 years) and the associated delay to any increase in productivity, combined with the uncertainty associated with the timing of the recovery of sandeel biomass and ongoing predicted impacts to survival from the operation of the wind farm.

Given the unprecedented scale of predicted impacts to many vulnerable seabird populations, we are concerned that there could be substantial losses between commencement of operation and any compensatory benefits from the proposed measures being realised. Compensation benefits must therefore be in place before operational impacts occur, otherwise predicted losses during this lag could seriously undermine the ability of the proposed measures to offset predicted impacts, throughout the lifespan of the wind farm. This position aligns with EC guidance on the timing of compensation[1].

For clarity, we consider that the colony based measures, whilst welcome, are not sufficient to address the overall impacts in insolation.

In addition to our main concern around the time lag, as discussed above, we have summarised aspects of the derogation package that require further consideration and assessment:

- Not all species for which we have concluded an adverse effect on site integrity have been addressed within the package (e.g. gannet);
- Data from the Isle of May colony is used to inform modelling predictions for other SPAs on the number of seabirds likely to benefit from the sandeel fishery closure is based. However, uncertainty around differing foraging behaviour and activity for each species at different colonies, makes it inherently difficult to be confident in the predicted numbers of seabirds likely to benefit from compensation in absolute terms;
- We are mindful that closure of the sandeel fishery (via either option) has not been done at this scale before and experience from the closure of the sandeel box highlights the significant level of monitoring required, over a long period of time, to understand and quantify positive effects. This has not been adequately addressed in the package provided;
- The location of proposed compensation measures on Handa is at a considerable distance from the development and is contrary to European Site derogation principles i.e. compensation should be secured close to impacts;
- The wind farm application identifies adverse impacts to a wide range of species, a large number of individuals and at colonies, particularly on the East Coast of Scotland, which make a significant contribution to the UK's European Site Network. We remain unconvinced that colony measures on

[1] https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/EN_art_6_guide_jun_2019.pdf)

Handa, located within a different biogeographic region to many of the impacted colonies, will therefore adequately contribute to network coherence;

- There is insufficient consideration of baseline and ongoing monitoring requirements (e.g. monitoring metrics and progress indicators for Dunbar / Handa). This makes it difficult to confidently assess the likely effectiveness of the proposed measures. We raise this due to the potential implications for any necessary adaptive management measures. In addition, some adaptive management compensation measures are inappropriate and unlikely to provide substantial benefit to seabirds e.g. habitat management measures at Handa;
- The evidence for colony measures proposed for Dunbar is weak (i.e. lack of quantitative evidence that disturbance is limiting population expansion). Further to this, the assessment has not quantified impacts from the development to this colony, therefore we are unable to determine if the compensation measures proposed will positively contribute to the kittiwake population and by how much.

We also advise that if there are any difficulties in implementing any of the proposed compensation measures, than other measures will require to be identified and implemented before impacts occur.

Impacts from Highly Pathogenic Avian Influenza (HPAI) on species and colonies predicted to be affected by the wind farm proposal also raise additional uncertainties regarding the potential need for conservation measures to enable recovery, separate to offshore wind farm impacts and additional to compensation measures. Further discussion will be needed around this should the package be taken forward.

We provide further advice on these aspects based on each of documents provided in the derogation package, as described below:

- Advice on the Derogation Case, specifically Part D: Compensatory Measures, is provided in **Appendix A**.
- Advice on the Fisheries Compensatory Measures Evidence Report is provided in **Appendix B**.
- Advice on the Colony Compensatory Measures Evidence Report is provided in **Appendix C**.
- Advice on the Implementation and Monitoring Plan is provided in **Appendix D**.
- Advice on the Derogation Case – Environmental Impact Assessment Report (EIAR) is provided in **Appendix E**.
- Advice on the Derogation Case – Report to Inform Appropriate Assessment (RIAA) is provided in **Appendix F**.

Further information and advice

We hope this advice is helpful. Please contact Karen Taylor (karen.taylor@nature.scot / 0131 316 2693) or Erica Knott (erica.knott@nature.scot / 01738 458674) in the first instance for any further advice.

Yours sincerely,
[Redacted]

Nick Halfhide
Director of Nature and Climate Change

Cc Natural England, JNCC

NatureScot ADVICE FOR BERWICK BANK OFFSHORE WIND FARM – DEROGATION

APPENDIX A – DEROGATION CASE – PART D: COMPENSATORY MEASURES

We have reviewed the Derogation Case – Part D: Compensatory Measures report for the proposed Berwick Bank offshore wind farm. We provide advice, as outlined below, on those European sites and their qualifying features that we consider require inclusion in the derogation package, as well as an overview of the proposed derogation package. Further detailed advice on the fisheries and colony-based compensation measures, implementation and monitoring, the Environmental Impact Assessment Report (EIAR) and the Report to Inform Appropriate Assessment (RIAA) can be found in the relevant appendices, as described in our cover letter.

Adverse effects on European sites

In our separate response covering the ornithology impacts across the EIA and RIAA for the proposed wind farm application (31 March 2023), we provide further detail with respect to our conclusions on adverse effect on European sites.

Within the derogation RIAA, Table 18 presents a summary of predicted mortalities of the four species (kittiwake, puffin, guillemot and razorbill) the applicant has assessed as having an adverse effect on site integrity (AEOSI). However, with respect to Scottish SPAs, we have concluded an AEOSI (or been unable to conclude No AEOSI) either alone or in-combination as a result of displacement effects (auk species only) or combined displacement and collision mortality, to a greater number of sites / features. Our conclusions are provided below:

- Buchan Ness to Collieston Coast SPA for kittiwake;
- East Caithness Cliffs SPA for kittiwake, razorbill, breeding seabird assemblage;
- Forth Islands SPA for guillemot, kittiwake, puffin, razorbill, gannet, breeding seabird assemblage;
- Fowlsheugh SPA for guillemot, kittiwake, razorbill, breeding seabird assemblage;
- Hermaness, Saxa Vord and Valla Field SPA for gannet
- North Caithness Cliffs SPA for kittiwake, breeding seabird assemblage;
- Outer Firth of Forth and St Andrews Bay Complex SPA for guillemot, kittiwake, puffin, gannet, breeding seabird assemblage;
- Outer Firth of Forth and St Andrews Bay Complex SPA for non-breeding razorbill, kittiwake, guillemot and seabird assessmblage;
- St Abb's Head to Fast Castle SPA for guillemot, kittiwake, razorbill, breeding seabird assemblage;
- Troup, Pennan and Lion's Head SPA for kittiwake, razorbill and breeding seabird assemblage.
- West Westray SPA for kittiwake, breeding seabird assemblage (kittiwake).

Insufficient information was provided with the wind farm application to ascertain No AEOSI for the Outer Firth of Forth and St Andrews Bay Complex SPA with respect to vessel disturbance during the construction and operational period. Further information is required from the applicants before we can determine whether mitigation or compensation is required and for which qualifying feature (s) for this SPA.

Objectives of compensation measures

The development as currently proposed has the potential to adversely affect a number of SPAs for a variety of species in both Scotland and England. In addition to the concerns for individual SPAs, these sites form part of the UK's European SPA network and it is the overall coherence of that network that needs to be maintained. Any proposed compensation measures therefore need to account for the overall coherence of the network. This application is possibly the first which has such wide ranging impacts across the UK's European SPA network.

The applicant has recognised coherence of the UK's European SPA network as the main aim of the proposed compensatory measures. In order to help maintain this network, Paragraph 408 correctly identifies that the compensatory measures should reduce mortality, increase recruitment, breeding success and/or productivity of seabirds. The stated objective is to offset the impacts on the adult population at the impacted sites; it is important that this is recognised as being the relevant populations of breeding adults.

Fisheries-based compensation measures – summary

We agree that poor prey availability is one of the highest pressures that seabirds face, including all four species taken forward by the applicant for compensation. The applicant has proposed two options relating to the sandeel fishery in SA4.

Option 1 is the closure of the SA4 sandeel fishery and monitoring of seabirds and sandeels. We have focussed our advice on considering the ecological effectiveness of the proposed compensation measure. This is our preferred option. Closing the SA4 sandeel fishery would provide the greatest benefit for seabirds in the east and north of Scotland and north-east England.

Option 2 proposes an ecosystem-based approach for management of SA4, i.e. the sandeel fishery could be reopened if the sandeel stock reached a certain stock biomass. This is not our preferred option. The measure would be less ecologically effective than a complete closure; and its implementation would be substantially more complicated, with more uncertainty of success. Additionally, it would be more difficult to detect signals in seabird populations to a response of fisheries management, if the fishery remained open (i.e. ability to prove that the compensatory measure was effective). Of the two options presented, there is a greater chance of success of sufficient compensation with a complete sandeel fishery closure.

Further advice on the fisheries-based compensation measures is provided in Appendix B.

Colony-based compensation measures – summary

Identification of colony-based compensation measures included extensive stakeholder engagement, which ensured that a broad range of potential measures across multiple possible locations were initially identified and consulted upon. These included rodent eradication from colonies, management of human disturbance, diversionary feeding or other management of avian predators, supplementary feeding of chicks, control of foxes and removal of marine litter.

From this initial long-list, the measures proposed to be taken forward by the applicant were:

- (brown) rat eradication and biosecurity measures at Handa Island SPA; and
- wardening of the (non-SPA) kittiwake colony at Dunbar Castle, including implementation of a Kittiwake Management Plan.

Eradication of (black) rats as well as biosecurity and colony management at Inchcolm (non-SPA) island located in the Firth of Forth was not taken forward as a colony measure within the derogation package. No clear explanation of this decision is provided in the package, despite its closer proximity to the wind farm and potential benefit to a number of impacted species.

None of the measures listed in Table 21 or included in the proposed package would directly benefit gannet. A relevant potential measure that was considered during pre-application – cessation of gannet harvest at Sula Sgeir – is briefly mentioned twice (paragraphs 428, 429) but no assessment is provided and it has not included in the proposed derogation package.

Further advice on the colony-based compensation measures is provided in Appendix C.

Compensatory ratios and timings

Compensatory ratios are presented for the combined predicted compensation for both fisheries and colony-compensation measures in Table 26. Whilst compensation ratios are untested in a Scottish setting,

it is useful to see them in the context of the proposed development. We advise that if Marine Scotland, are minded to grant consent based on the derogation package provided, that they are satisfied that there is sufficient compensation in place and achieving benefits prior to operational impacts occurring.

The fisheries measures are predicted by the applicant to have far higher benefits than the colony-based compensation. The numbers presented are assumed to relate to per annum increases in compensation, as opposed to numbers predicted over the whole project. However, in reality responses to the measures would not accrue in even annual increments given factors such as, but not limited to: lag times in recovery of fish stocks following reduction of fisheries pressure; potential for rat eradication campaigns to take several years before success; mean ages of first breeding of the target seabird species (ranging from four years for kittiwake, to five in puffin and razorbill and six in common guillemot[2]); and, potential density dependence in seabird populations.

Given that operational impacts from collision and/or displacement by turbines may be anticipated to be relatively constant over time, and also that there will be some displacement effects during construction, the relative timing and scale of delivery of benefits from compensatory measures is a critical consideration in assessing the overall effectiveness of the compensation proposed. It is assumed that impacts will begin in 2027, as per the applicants Population Viability Analysis (PVA) modelling, but as noted above there may be earlier impacts, either way, this does not allow much flexibility, given the lag times discussed above. As far as possible, compensatory measures should be in place and effective before a risk of damage arises.

[2] Horswill, C. & Robinson R. A. 2015. Review of seabird demographic rates and density dependence. *JNCC Report No. 552*. Joint Nature Conservation Committee, Peterborough.

NatureScot ADVICE FOR BERWICK BANK OFFSHORE WIND FARM – DEROGATION

APPENDIX B – FISHERIES COMPENSATORY MEASURES EVIDENCE REPORT

We have reviewed the Fisheries Compensatory Measures Evidence Report for the proposed Berwick Bank offshore wind farm. Overall, this is a well laid-out and researched report. We provide advice, as outlined below, on the two options for fisheries-based compensation including:

- Option 1 – full closure of the sandeel fishery in SA4; and
- Option 2 – ecosystem management of the sandeel fishery in SA4.

No further fishery compensation measures have been considered. We agree that other fisheries-based compensation measures, e.g. restricting use of bottom-contact fishing gear on sandeel and sandeel habitat require further evidence to support their efficacy. It is suggested that these measures may be developed as part of adaptive management, which we advise on in Appendix D – Implementation and Monitoring Plan.

We note that for the proposed fisheries measures, there are strategic UK-wide discussions taking place on the potential for sandeel fishery closures across the UK, as well as discussions within the Scottish Government's Future Fisheries Management Strategy Delivery Plan. The decision as to whether or not the proposed fisheries measures presented meets additionality requirements ultimately sits with Marine Scotland.

We welcome the consideration of the implications of climate change on the fisheries-based compensation measures. This is presented as a literature review, as opposed to modelling sandeel stock biomass change.

Management options presented

The report clearly lays out the evidence with respect to current levels of fishing within SA4, including in relation to the ICES limit for Total Allowable Catch (TAC), and, that the TAC does not consider the existing closed box within SA4.

Full closure of SA4 (Option 1) would likely be beneficial to the four seabird species taken forward by the applicant for compensation, due to the importance of sandeels as a prey resource and because seabirds are likely to forage across a larger area than the current closed box in SA4. The ecosystem management approach (Option 2) would close the sandeel fishery until monitoring showed the sandeel biomass had reached 400,000 tonnes, at which point commercial fishing may be allowed to re-open, if increases in adult seabird survival were sufficient. There are considerable uncertainties in such an approach. Furthermore, monitoring of both the fishery and subsequent effects on seabirds would be difficult, especially if the fishery was still ongoing.

Predicted seabird population changes

We agree with the use of adult return rates as a proxy for survival, as this is frequently used in seabird studies. The evidence presented indicates that sandeel biomass would increase following a closure of the fishery. Relationships between sandeel biomass and productivity or abundance have been shown in the seabird species considered. Whilst the relationship is less clear for razorbill, we agree that this could be partially due to the methodology, with it being harder to count razorbills nesting amongst rocks. Given the evidence presented, we would agree with the conclusions that an increase in sandeel availability as foraged prey would give these seabird species the best chance of increasing their populations. However, there is uncertainty regarding the timing of delivering benefits from the closure of SA4, particularly in relation to the recovery of sandeel biomass and mean breeding ages of seabirds.

The "*one third for the birds*" principle from Cury et al. (2011)[3] is proposed and in this context would equate to 300,000 tonnes. However, we highlight that within the Cury et al. (2011) paper the threshold 95% confidence interval was 31-39%, with an average of 34.6%. This is slightly more than one third and gives reason to be more precautionary if the Cury's principle is used to set threshold limits to allow the sandeel fishery to reopen, as per Option 2. The suggested threshold to consider allowing commercial fishing to re-open under Option 2 is 400,000 tonnes, and whilst Cury et al. (2011) provides a useful guide, we would expect any adaptive management approach to be precautionary and based on detailed monitoring of sandeels and relevant bird species / assemblages.

Scenario testing

There are five scenarios assessed with respect to sandeel stock biomass:

I. 100,000 increasing to 200,000 tonnes,
II. 200,000-300,000 tonnes,
III. 300,000-400,000 tonnes,
IV. 300,000-600,000 tonnes and
V. 300,000-800,000 tonnes.

The scenario with the most conservative increase (or smallest effect) on seabird survival and productivity is 300,000-400,000 tonnes. This is also visualised in Figure 1.6, which shows a steeper increase in seabird annual return rates when the starting biomass is lower, i.e. 100,000-200,000 tonnes, as this is more limiting and far below the one third for the birds threshold.

The relationship between the sandeel biomass scenarios and seabird population size / adult return rates was based on Isle of May data only. This was then applied to all other SPAs. There is a level of uncertainty, given that other SPAs will have different relationships. Thus, it is inherently difficult to be confident in the predicted numbers of birds in absolute terms due to the potential differences between the SPAs and the non-SPA colonies.

Furthermore, not all predicted additional birds may make it to recruitment age. Although a conversion factor is applied, it still takes a number of years for seabirds to reach breeding age, thus there would be a lag in population increases and the numbers of additional birds due to increased productivity may be an over-estimation.

Population Viability Analysis (PVA)

The PVA output metrics used were the counterfactual of population size (CPS) and the counterfactual of population growth rate (CGR). The projections are based on the impact beginning in 2027 and ending in 2077 (50 years) – i.e. the seabed lease period. In all cases for the survival and productivity compensation combined, the median CGR for kittiwake, puffin and guillemot was above one. For razorbill, only survival was considered - there being no clear relationship between sandeel biomass and razorbill productivity. Similarly, the razorbill median CGR for the compensation was above one.

It is likely that the SA4 closure could lead to increased numbers in the four species considered, when looking at the relative differences in population growth rates resulting from the compensatory measures, rather than the absolute numbers, which are unrealistic. It would have been useful if the results from the adult survival compensation on its own were also presented, alongside the combined survival and productivity model. This is due to the uncertainly around the productivity numbers being realistic, but is unlikely to change our overall advice on the application or the derogation package.

[3] Cury, P.M., Boyd, I.L., Bonhommeau, S., Anker-Nilssen, T., Crawford, R.J., Furness, R.W., Mills, J.A., Murphy, E.J., Österblom, H., Paleczny, M. and Piatt, J.F., 2011. Global seabird response to forage fish depletion—one-third for the birds. *Science*, *334*(6063), pp.1703-1706.

Conclusions

The closure of SA4 is the only measure presented within the derogation package that is on the scale required to deliver compensation for the impacted species. Whilst there is uncertainty in the absolute values of predicted increases in seabirds, we agree that increases in sandeel biomass as a result of the SA4 closure would likely lead to increased population growth rates for these four species, due to increased survival, or a combination of increased survival and increased productivity.

Given these uncertainties, we are currently unable to conclude whether the compensation package presented provides sufficient benefits to compensate adequately for the predicted adverse impacts on species over the lifespan of the proposed wind farm.

NatureScot ADVICE FOR BERWICK BANK OFFSHORE WIND FARM – DEROGATION

APPENDIX C – COLONY COMPENSATORY MEASURES EVIDENCE REPORT

We have reviewed the Colony Compensatory Measures Evidence Report for the proposed Berwick Bank offshore wind farm. We provide advice, as outlined below, on the two colony-based compensation measures proposed by the applicant, including wardening at the non-SPA kittiwake colony at Dunbar and (brown) rat eradication on Handa SPA.

We are content, based on our understanding of current site management, that the proposed colony measures are additional to normal conservation management practices.

General comments

The report acknowledges that compensation benefits may be impacted by uncontrollable factors including diseases, weather, etc. However, there is no detailed consideration of these factors, nor of implications of predicted impacts of climate change on marine birds within the lifespan of this project.

Brown rat eradication at Handa

The management plan for Handa (2015-2024) extends only to monitor for the presence of brown rats and control if necessary rather than eradication. A Biosecurity Assessment (LIFE17 GIE/UK/000572) for Handa was undertaken in 2019, with a recommendation that a plan was written for the island. As part of the EU Biosecurity for LIFE Project, a trial to test the efficiency of self-resetting A24 traps was undertaken on Handa, which will end in 2023. Our understanding is that the Biosecurity for LIFE projects ends this year (2023) with no specific trapping planned after this date. We are content that the eradication of brown rats and long term biosecurity is therefore additional.

Section 2.4 details the proposed brown rat eradication and biosecurity measures at Handa. This includes evidence of frequent brown rat incursions and population fluctuations between 2005 and 2020 following previous eradication in 1997. There have also been incursions by hedgehog, stoat and mink, all of which could impact ground and burrow-nesting species, including puffin; these other incursions would increase the ongoing biosecurity challenges given the very different ecologies of these species to rats. The fundamental underlying risks of re-incursion by brown rats are also high given proximity to mainland coast, the island's status as a visitor attraction and repeated brown rat incursions historically.

The previous rat eradication, although only maintained for up to 8 years, did demonstrate that there would likely be substantial positive response by puffins to rat removal. There was also some evidence of benefit to razorbills at particular locations, including a boulder field. This would be in line with experience at other colonies where rats have been eradicated, but it is acknowledged that more information would be needed to quantify potential benefits.

Evidence for a positive effect on cliff-nesting species is weak and largely speculative. In particular, there is no evidence of suppression of productivity in either kittiwake or guillemot (see paragraphs 169, 172) at Handa with the presence of rats. With respect to guillemot, we do not support the suggestion that a possible increase in breeding success seen recently at Great Stack compared to one other plot would apply across the island. Table 2.7 indicates considerable inter annual variation in breeding success at both plots, irrespective of rat presence or absence and if 95% confidence intervals are included, then these all overlap (i.e. for both plots and in both time periods). For kittiwake there is evidence that breeding success at the Great Stack is higher than at plots on the main island irrespective of rat presence or absence, which might suggest that some other location-specific factors are operating, such as aspect or disturbance. It is acknowledged that there are insufficient data to estimate any potential increase in overall kittiwake productivity if rats were removed.

Given the above, we regard the suggested benefits of rat eradication and the numbers presented at Table 2.9 as highly speculative and not backed by sufficiently robust supportive data or evidence.

Handa lies in the Celtic Seas sub-region of the OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic, which is biogeographically distinct from the Greater North Sea sub-region[4,5] including the Firth of Forth and the proposed wind farm location. It is argued that there is some degree of connectivity between the Firth of Forth and Handa for all four target species. However, the evidence presented is generic and not supported by any direct tracking or ringing data. Any compensatory benefits achieved at Handa would therefore need to be considered solely with respect to overall integrity of the UK's European Site Network. There is much clearer connectivity between Inchcolm and both impacted SPAs and wider regional population in the Forth, which we advise on below.

Wardening at Dunbar kittiwake colony

The basis of this proposal is that numbers of breeding kittiwakes at the (non-SPA) colony at Dunbar have not responded to existing sandeel closure in the same way as populations at the Isle of May. It is proposed that management of human disturbance, particularly at the Main Castle sub-colony, which is immediately adjacent to a public walkway that is also used for creel storage, could enable colony recovery from current level of c.800 pairs to peak of c.1200 pairs. The proposed delivery mechanism is employment of a warden.

The colony is very small in relation to others in the Forth (Figure 3.1) and as such its fundamental capacity to support increase in the wider regional population is limited. In addition, while Dunbar is not an SPA, and therefore no predicted losses from the development have been apportioned to it in the assessment, birds would also be lost from this colony. As such, any potential for colony measures at Dunbar to provide wider regional compensation, would require the benefit to substantially exceed losses that would arise at the Dunbar colony from operation of the proposed wind farm. In this context, the suggested conservation target averaging 23 birds per year over 35 years when set against projected annual mortality from collision (986) and displacement (up to 416) of kittiwakes from the proposed wind farm is of very limited potential benefit even if all were fully compensatory for affected SPA populations.

There is agreement among local stakeholders of anecdotal evidence that disturbance is an issue (paragraphs 271, 272). However, direct evidence for this is limited.

The case made for disturbance being an issue at Dunbar, is partly based on a line in a paper by Searle et al. (2023)[6], which examines breeding success across multiple kittiwake colonies in the Forth region in relation to the sandeel fisheries closure. This analysis found that the kittiwake colonies at Dunbar Coast and the Isle of May showed markedly differing changes in breeding success from the period of fishery operation to its subsequent closure, with breeding success at Dunbar continuing to show a moderate decline, whilst breeding success on the Isle of May increased by around 17% over the same period. Searle et al. (2023) suggested that "*breeding success at Dunbar may be lower than the Isle of May because of greater human disturbance*" but also pointed to there being multiple factors that may drive variation among colonies.

The data used in the Searle et al. (2023) analyses is from the UK Seabird Monitoring Programme (SMP) database for a kittiwake productivity monitoring site named Dunbar Coast, which is centred c.1km west of Dunbar Harbour (at NT6674 7921) and extends from NT6674 7921 below Winterfield Golf Club, east to Dunbar Harbour Entrance (e-mail from SMP database manager, 21 March 2023). As such, it is presumed to include sub-colonies 6, 5, 2 and possibly 3 shown in Figure 3.2, but not any of the other sub-colonies, including Main Castle (sub-colony 1) included in Table 3.1 for Dunbar Castle and surrounding coastline. This negates use of the Searle et al. (2023) paper as providing evidence of disturbance at this specific location.

[4]https://www.ospar.org/convention/the-north-east-atlantic

[5]Gubbay, S. 2014. A review of the use of biogeography and different biogeographic scales in MPA network assessment. *JNCC Report No. 496*.

[6]Searle, K.R., Regan, C.E., Perrow, M.R., Butler, A., Rindorf, A., Harris, M.P., Newell, M.A., Wanless, S., & Daunt, F. (in prep). *Effects of a fishery closure and prey abundance on seabird diet and breeding success: implications for strategic fisheries management and seabird conservation*. Submitted to Biological Conservation.

No other kittiwake productivity monitoring sites appear in the SMP database for either East Lothian or Berwickshire, so it may be that the data collected by East Lothian Council (ELC) are not provided to the SMP. However, it is evident from the SMP database that there are breeding success data from multiple kittiwake monitoring plots in the general Dunbar area that could be used to investigate whether there is any compelling evidence for localised effects at particular sub-colonies in the Harbour area, notably the Main Castle sub-colony which is a focus for much of the proposed management.

The evidence on changing visitor numbers or increase in use of the harbour is qualitative and as such there is no direct evidence for increased / increasing levels of incidental disturbance at the colony. Similarly, the information on incidences of deliberate vandalism is very scant. It is noted that an outdoor performing arts venue was established at the Battery in 2017, but it is unclear how any associated disturbance impacts could realistically now be managed if not considered when the venue was originally permitted or even if disturbance occurs due to this resource.

The suggested modification of habitat in undisturbed areas (Section 3.3.5) was not discussed at the pre-application stage and the potential benefits are unclear and likely marginal at best.

While there would be undoubted wider potential benefits associated with wardening, including education and community engagement, it is unclear whether measures to reduce disturbance or vandalism could not readily be addressed through existing mechanisms potentially available to either the local authority or Harbour Trust such as: provision of signage and/or information boards; installation of CCTV to deter wildlife crime; relocation of area used for creel storage; rat control; and better management of waste fishing nets. We are unsure whether or not seasonal closure of path access is permissible.

Additional Measures

Lastly, we query below why two other potential colony-based compensation measures have not been taken through to the derogation package.

- Black rat eradication at Inchcolm

We question why (black) rat eradication, biosecurity and colony management at Inchcolm Island (non-SPA) in the Firth of Forth was investigated but has not been taken forward. No clear explanation of this decision is presented in this colony report.

The evidence provided indicates that removal of black rats at Inchcolm and implementation of effective biosecurity measures to prevent future (most likely brown rat) incursion could, together with vegetation management to control tree mallow, enable colonisation of areas of apparently suitable but currently unoccupied habitat, not just for puffins and razorbills, but also kittiwakes and guillemots.

- Reduction in Sula Sgeir gannet harvest

This was identified as a compensation measure during the roadmap process, but has not been included in the derogation package given the applicants conclusion of no adverse effect on site integrity for gannet.

Conclusions

The colony compensation measures are insufficient on their own to address the scale of predicted impacts from the proposed offshore wind and do not address all of the species impacted.

NatureScot ADVICE FOR BERWICK BANK OFFSHORE WIND FARM – DEROGATION

APPENDIX D – IMPLEMENTATION AND MONITORING PLAN

We have reviewed the Implementation and Monitoring Plan for the proposed Berwick Bank offshore wind farm. In cases of uncertainty, we consider monitoring and adaptive management to be of central importance in demonstrating and securing the sufficiency of compensatory measures.

Fisheries-based compensation measures

It is proposed that a Closure Mechanism Plan is developed in consultation with various stakeholders, including NatureScot. A Sandeel Monitoring Protocol would also be developed.

A figure of 5,000 tonnes per year is suggested for scientific monitoring. From a seabird perspective, the preference is wherever possible to have a non-destructive monitoring plan in place e.g. to use acoustic monitoring for biomass estimations (as per techniques used in Norway), or video surveillance where possible and to take the minimum amount of monitoring dredges as possible. Advice on the precise number of tonnes will ultimately lie with fisheries advisers, but we would want to see a strict, low limit on this, potentially as part of validating acoustic monitoring approaches. Non-destructive sandeel monitoring should be favoured.

In paragraph 29 it is stated "*data at the bank level is required to relate sandeel availability and accessibility to seabirds*". Due to the scale over which seabirds forage and operate and the difficulty in obtaining bank level data for sandeels, we are not convinced this scale of sandeel monitoring would be required, nor be the appropriate scale over which to then consider seabird demographics. Seabirds will be passing across multiple different sandbanks within the area available to them to forage. Further discussions on the scale of sandeel monitoring that would need to take place should involve both fisheries and seabird experts.

The Option 1 full sandeel fisheries closure is the more straightforward of the two options to both implement and monitor. Should Option 2 be taken forward instead, then further discussions would be required regarding the total stock biomass threshold / trigger point, suggested as 400,000 tonnes, whereby commercial fishing might be allowed to re-open. As discussed in Appendix B we would want to see a suitably robust, precautionary threshold applied.

As well as monitoring the sandeel stocks, monitoring of relevant seabird populations over the lifetime of the development is also crucial. There is a proposed Seabird Compensation Monitoring Protocol, which similar to the Closure Mechanism Plan, will be developed in conjunction with stakeholders. The key metrics to be considered include return rates, productivity, population size, foraging behaviour and diet/chick provisioning; we are content with these metrics. If diet sampling or tracking is not possible at all colonies, observational chick provisioning work can be a proxy for time spent foraging during chick-rearing. Whilst GPS tagging is not currently feasible for puffins, diet sampling (e.g. similar to the mist sampling of puffins that takes place on Isle of May) could be achieved.

At this stage, extensive comments on what monitoring we would expect have not been provided as this would take place during the consultation process for the monitoring plan. All the SPAs predicted to be impacted by the development, as well as some other colonies within the SA4 region not predicted to require compensation, should be subject to monitoring. This would be required not just to assess overall impact and effectiveness of the fisheries measures, but also to determine any additional benefit arising from proposed colony-based measures, in particular at Dunbar.

Colony-based compensation measures – general comments

The development of progress indicators and associated metrics is deferred to Monitoring and Evaluation Plans. However, these need to be considered in detail at an early stage. Critically, consideration of progress indicators and metrics should be informed by review of existing baseline data availability and also inform identification of key baseline data gaps relevant to the proposed measures.

Brown rat eradication on Handa

Paragraph 115 suggests that adjacent land on the mainland could also be maintained as a rat-free buffer – this was not a feature of the proposal as described in the Colony Compensatory Measures Evidence Report and would require detailed assessment of effectiveness and feasibility. We are unclear whether this would extend to other species including hedgehogs, mink and stoats that have also previously been found on Handa. The proposal for a condensed feasibility assessment (paragraphs 117, 118) highlights that the feasibility assessment for Handa is less advanced than for Inchcolm – which is not currently included as a colony measure, which increases uncertainty around this proposed measure.

In terms of success and a critical aspect with respect to Monitoring and Reporting (Section 3.4) is clarity on how actions will be taken forward and by whom, and with appropriate training and experience.

A particular concern is the lack of detail around the seabird monitoring and what it can deliver in terms of evaluation of eradication effectiveness. There are no details on spatial aspects or metrics for effective monitoring to detect effects of eradication.

It is also essential that comparable baseline data are available. The use of annual target figures is problematic given likely levels of fluctuations in whole colony population estimates, reflecting both genuine inter-annual variation and counting uncertainty. This applies particularly for species such as guillemot, for which there is much more variation and uncertainty about whole colony counts of dense masses of individual birds crowded on ledges. More robust data on colony changes and trends can be obtained where sufficient numbers of representative plots are counted multiple times from land each season (Walsh et al. 1995[7]). Monitoring of breeding success across multiple plots representative of the wider colony is also valuable. However, no clear details are provided on how numbers and breeding success of the target species have been monitored at Handa in the past and hence whether there are sufficient baseline data against which to assess effects of rat eradication.

Following from the previous comments around lack of suitable comparative baseline, the proposed timetable for implementation in Section 3.5 seems very ambitious. It is intended to undertake the Condensed Assessment and Feasibility study post-application and pre-consent in 2023, overlapping with preparation of the Operational Plan by the end of 2023 and also to work on Biosecurity and Evaluation and Monitoring Plans in this period - to be finalised following a very short (spring/summer 2024) phase of pre-eradication field studies, including a seabird census. The specific context of Highly Pathogenic Avian Influenza (HPAI) is an added concern, given the potential for the current baseline to be impacted by past or ongoing mortality. No contingency is included should the feasibility assessment highlight particular issues/challenges.

Wardening at Dunbar kittiwake colony

It is proposed to collect one season's baseline data in 2024 including: number and location of nests, attendance rates, chick feeds and productivity in different areas; and, on human usage of the harbour area to inform understanding of disturbance. As detailed in Appendix C, the absence of analysis of available existing data, particularly on productivity in different kittiwake colonies/sub-colonies in the Dunbar area, and on disturbance around the harbour, is a central issue with respect to assessing the potential for the proposed measures to deliver the projected benefits. As such, a key question is what would be done should further analyses and/or collection of additional baseline data undermine the basis for the proposed compensatory measure.

There is also a particular issue with relying on a single year's baseline data given natural inter-annual variation and in the specific context of HPAI. The latter could impact the baseline either directly if prevalence in 2023 reduces occupancy, survival or breeding success, or indirectly if there has been a sharp

[7] Walsh, P.M., Halley, D.J., Harris, M.P., del Nevo, A., Sim, I.M.W., & Tasker, M.L. 1995. *Seabird monitoring handbook for Britain and Ireland*. JNCC / RSPB / ITE / Seabird Group, Peterborough

population decline as a consequence of disease prevalence in 2022 and surviving birds redistribute themselves across the sub-colonies, with possible selection of higher quality sites by more experienced/higher quality birds. It is also important that weather is considered noting that the Main Castle sub-colony has a different aspect to other parts of the colony; any evident reasons for nest failure including predation, exposure to severe weather, human disturbance, disease, apparent chick starvation, etc. should be recorded.

With respect to potential operational measures, there is lack of detail on potential mechanisms for enactment and enforcement. Similarly, we question how likely it is that wardening would directly prevent any instances of disturbance unless there is a 24-hour presence.

With respect to monitoring (Section 4.4) there is a lack of detail. As outlined above with respect to baseline data collection, it is essential that the monitoring plan considers all possible drivers of population distribution, numbers and breeding success, not just those that are the proposed focus of management (i.e. disturbance and litter). The suggested use of cameras and AI to support monitoring is of interest; it would be important that any such trials are fully calibrated with standard methods and fully written-up and subject to peer review processes, prior to being made available for potential wider industry application.

Adaptive management

Three possible forms of adaptive management are identified that might be implemented in the event that monitoring shows that the compensatory measures adopted are not progressing towards conservation targets, namely: built in adaptive management to each compensatory measure; secondary compensatory measures; and, strategic adaptive management.

Adaptive management approaches at Handa are discussed in Section 3.6. Given that there are already very large established colonies of these birds on Handa, the likely effectiveness of social attraction methods or ledge painting is doubtful. Conversely, there is a risk that such measures might simply encourage immigration from other colonies. The use of social attraction methods at Inchcolm could be more relevant than at Handa, as the focus for the former is on encouraging re-colonisation of a relatively small depleted colony. Furthermore, artificial ground cover and vegetation management could impact the maritime cliff qualifying feature of the Handa Island SSSI, and thus consent would be required.

Adaptive management at Dunbar is discussed in Section 4.6. It is stated that if monitoring found the compensatory measures were not attaining targets, then new measures would be identified or existing measures adapted. However, this presumes that there is innate potential for colony increase, including when subjected to added pressures from operation of the wind farm and potentially prior to any benefits from proposed fisheries-based compensatory measures being realised, and that any barriers to targets being realised can be addressed by measures within the colony.

Secondary compensation measures are identified as measures developed as part of the compensatory measures selection process. There is some further discussion of Inchcolm (black) rat eradication as a secondary compensatory measure (Section 5.1).

For fisheries-based compensation, it is stated that further adaptive management actions could be put in place, such as implementing: restrictions on bottom-contact fishing gear on sandeel and sandeel habitat (e.g. scallop dredging) or management measures for other fisheries (e.g. sprat fishery). In addition, closure of the sandeel fishery at a larger scale could be considered (recognising the ongoing consultation on potential new measures in English waters - Defra, 2023). The Implementation and Monitoring Plan does not develop these measures further, but we would expect there to be robust adaptive management considered.

Timing of compensatory measures

There is uncertainty around adaptive management timelines, with respect to progress (or lack thereof) towards conservation targets from the primary compensation measures, including when adaptive

management is triggered. These targets are long-term and are being set for long-lived birds which do not breed until 4-6 years old (depending on species). As such, they can legitimately be expected to take time to work. However, this also means that if alternative compensatory measures were to be used, such decisions would need to be made relatively early in the overall lifespan of the project. Adaptive management timelines would need to be discussed and agreed with NatureScot and Marine Scotland.

Section 6 of the implementation and monitoring plan considers the timing of measures. Paragraph 292 argues that compensatory measures could be implemented *"at, or shortly before, operation",* which means benefits would not be realised at the point when impacts begin. The apparent basis for this argument is that compensatory measures identified *are "of a different order of magnitude* [to those adopted for consented developments in England, paragraphs 282-285)] *and operate by different ecological mechanisms"* such that *"results [of the compensation measures] are likely to be operational at the time the impacts occur ... and ...have such high compensation ratios that benefits are likely to occur very shortly after the measures become fully effective".*

The rationale for this argument is unclear. Indeed, the time lags that might be anticipated with respect to delivery of benefits to the target species from the proposed compensatory measures for the proposed wind farm may be significantly greater than for measures such as construction of artificial kittiwake nest sites at locations (in England) where population growth is constrained by availability of suitable natural habitat. In this case, delivery of additional nesting habitat may enable earlier recruitment of existing pre-breeding birds in the population and/or reduction in sabbatical rates among adults.

Benefits to seabird populations from fisheries measures will involve a lagged response both in the stocks themselves and then a further lagged response in seabird populations, mediated through enhanced productivity; given typical time to recruitment for the target bird species of between 4 and 6 years the total time for measures to generate measurable effect could be in the order of a decade.

We would wish to see compensation benefits before operational impacts occur to prevent predicted losses occurring that could seriously undermine any future potential recovery from these compensation measures.

With respect to the proposed colony-based compensation measures, there is considerable uncertainty around the benefits that might be delivered (in particular for cliff-nesting birds at Handa and for kittiwakes at Dunbar), although a more immediate response might be anticipated for puffins at Handa.

Paragraph 292 asserts that "*Assessment of site integrity at end of multi-year construction period is likely to conclude no effect on coherence of national site network compared to impact after 35-50 years of continued negative impacts on the relevant SPAs*". It is important not just to consider effects at the end of construction, but to consider how impacts would accrue during operational phase relative to the delivery of compensatory measures. Given the unprecedented and large scale of predicted impacts from operation of the proposed wind farm, particularly with respect to mortality of kittiwakes, there could be substantial losses during the period of years between wind farm operation commencing and any compensatory benefits from the measures starting to take effect.

NatureScot ADVICE FOR BERWICK BANK OFFSHORE WIND FARM – DEROGATION

APPENDIX E – DEROGATION CASE – ENVIRONMENTAL IMPACT ASSESSMENT REPORT

We have reviewed the Derogation Case Environmental Impact Assessment Report (EIAR) for the proposed Berwick Bank offshore wind farm. This report presents an assessment of the likely significant environmental effects of the compensatory measures. These effects are considered as indirect or secondary to the effects of the proposed development itself, which are considered in the main EIAR submitted with the application.

Fisheries-based compensation measures

The closure of the sandeel fishery is likely to result in a number of significant benefits for several receptor groups. We agree that there would be major beneficial effects for offshore ornithology and wider marine receptors should the sandeel fishery closure occur (Option 1). We would anticipate that beneficial effects would be lesser should Option 2 occur, but positive results for seabirds are still possible with reduced fishing in an ecosystem-based approach to management.

Colony-based compensation measures

Possible direct or indirect mortality of non-target marine bird species, through consuming rodenticide or dead or dying rats is not identified and should have been scoped in for assessment. While use of best practice and learning from previous eradication campaigns should help to mitigate risks, specific consideration should be given to great black-backed gulls which breed on Handa and may be present in winter months as well as gulls at Inchcolm, if this measure is taken forward, given the substantial breeding populations and likely presence of both herring and great black-backed gulls over winter.

Brown rat eradication on Handa

With respect to disturbance associated with brown rat eradication on Handa, particular attention should be given to great skuas. This is given cursory consideration in section 7.3, but without specific consideration of particular context of impacts of HPAI on the great skua population. Great skua are a qualifying feature of the Handa SPA. It will be particularly important to great skua population recovery that any additional disturbance or other anthropogenic pressures at breeding colonies are minimised in coming breeding seasons. While rat removal could potentially benefit great skuas, the Colony Compensatory Measures Evidence Report states that this is unclear on basis of current evidence. Elsewhere in Scotland large great skua colonies have historically co-existed with rats, but interactions are likely to be site-specific.

Great skuas may be particularly vulnerable to disturbance as they are ground nesting and will predate unguarded eggs or small chicks of conspecifics, such that the assessment of sensitivity as low may be insufficiently precautionary. The 1300 bait stations will be regularly placed across the whole island. While the spatial extent of the bait stations themselves is small, accessing them would require regular incursions into areas used by breeding great skuas that are not routinely disturbed (with visitors confined to a clearly marked path/boardwalk around the perimeter).

While adverse effects are likely to be minor in absolute terms (i.e. potential loss of small numbers of viable eggs or chicks over each breeding season), these may be significant in population terms, particularly in context of recovery of a severely disease impacted population. Additional targeted mitigation measures to minimise risk of loss of great skua eggs or young as a consequence of adults being flushed from nests should be considered. Similar considerations are also required for Arctic skuas, as great skuas will also predate their eggs or chicks if adults are flushed. Other sensitive species, including breeding red-throated divers also require consideration with respect to avoiding damaging disturbance.

Wardening at Dunbar kittiwake colony

The baseline description (Table 9) refers to gannet, guillemot and razorbill, in addition to kittiwake, as being "*key species of relevance to this measure*". This is incorrect as the measure is focused solely on kittiwake.

Given the mitigation identified in Table 3 (i.e. restricting any intrusive activities to the winter months), the assessment of associated potential adverse impacts from such activities as negligible to minor is reasonable.

However, addition of artificial ledges and overhangs, or removal of debris from kittiwake nests resulting in major benefit, is not supported by the available evidence. Further, each of these measures is individually assessed as delivering the entire projected benefits from the wardening measure, whereas they are characterised elsewhere as relatively minor or adaptive elements, with management of disturbance being the main focus.

Black rat eradication on Inchcolm

In Section 8, the baseline description in Table 10 identifies gannet, guillemot, razorbill and kittiwake, as being "*key species of relevance to this measure*"; whereas the list should be puffin, kittiwake, guillemot and razorbill.

Potential poisoning of non-target species, in particular wintering gulls should have been scoped into this assessment. The assessments of potential disturbance impacts are broadly reasonable, although sensitivity of breeding gulls during the long-term monitoring phase could be greater than low, given relatively high densities and risk of conspecific predation of eggs or chicks.

As for Handa, while rat eradication is beneficial to seabird populations, the magnitude of positive effect at Inchcolm is uncertain, such that the assessment may overestimate the significance of the effect.

NatureScot ADVICE FOR BERWICK BANK OFFSHORE WIND FARM – DEROGATION

APPENDIX F – DEROGATION CASE – REPORT TO INFORM APPROPRIATE ASSESSMENT

We have reviewed the Derogation Case Report to Inform Appropriate Assessment (RIAA) for the proposed Berwick Bank offshore wind farm.

Fisheries-based compensation measures

Only one potential effect relating to fisheries measures is presented: the loss of prey resource provided by bycatch and discards from fishing vessels. We are unsure why this has been screened in for the assessment as discards have not been permitted from fishing vessels since 2019. Thus, sandeel is not discarded in the North Sea. The benefits of the sandeel fisheries closing far outweigh any decrease in, what would be illegal, discards from sandeel fisheries. Therefore, we agree there is no adverse effect on site integrity for any of the SPAs screened in for consideration.

Colony-based compensation measures

As per our advice on the EIAR in Appendix E, potential accidental poisoning of non-target bird species should be identified as a potential effect of the rat eradication measures at both Handa and Inchcolm.

Brown rat eradication on Handa

The Likely Significant Effects (LSE) screening conclusions with respect to rat eradication at Handa as set out in Table 6 concludes LSE for the Handa SPA breeding seabird qualifying features with respect to disturbance associated with the eradication and immediate monitoring and long-term monitoring phases. This conclusion is reasonable.

With respect to potential incidental poisoning, great skuas are migratory and are absent from Scottish waters between mid-September and end March, such that there is no risk associated with incidental poisoning during winter eradication campaigns. Some fulmars and guillemots may attend colonies during winter but their diets and habits are such that any risk of incidental, including secondary, poisoning is negligible. Thus, while incidental poisoning should have been identified as a potential impact pathway for birds (offshore and intertidal ornithology), this does not affect the LSE screening conclusion for rat eradication at Handa.

Handa is also occasionally used by small numbers of barnacle geese on spring migration between wintering sites in Scotland and breeding grounds in Greenland and, these birds are likely to be associated with one of more of the SPAs for this species in Scotland. However, while there is SPA connectivity, the small numbers and occasional use mean that a conclusion of no LSE is warranted. No barnacle geese were seen on Handa in the latest (2018) national census in March 2018 (Mitchell and Hall, 2020[8]).

With respect to the Appropriate Assessment stage (Table 7), the conclusion of no adverse effect on site integrity for all qualifying interests with respect to potential disturbance during (winter) eradication phase is reasonable. However, the commentary around the assessment of disturbance during the long-term monitoring phase, which includes the summer months, focuses almost entirely on kittiwakes, which nest on cliffs along with guillemots and razorbills. As per our advice on the EIAR in Appendix E, the species most likely to be impacted by disturbance in this phase is great skua, as these are moorland nesting species which will prey on unguarded eggs or young. A small number of fulmars nesting along the cliff tops may also be particularly vulnerable to disturbance, although given the large size of the population (3,500 pairs) no adverse effect on site integrity can safely be concluded.

Wardening at Dunbar kittiwake colony

[8]Mitchell, C. & Hall, C. 2020. Greenland barnacle geese *Branta leucopsis* in Britain and Ireland: results of the International census, spring 2018. *Scottish Natural Heritage Research Report No. 1154*.

Table 8 screens in all qualifying interests of the Firth of Forth SPA/Ramsar site, and Outer Firth of Forth and St Andrews Bay SPA for LSE with respect to potential temporary disturbance impacts based on potential connectivity given proximity. This and the subsequent conclusion of no adverse effect on site integrity is valid. However, the supporting text is incorrect, as it refers solely to breeding seabirds for all sites and does not recognise that the qualifying features of the Firth of Forth SPA/Ramsar site are exclusively wader and waterbird features present in the winter or on migration, and that inshore wintering waterfowl are also features of the Outer Firth of Forth and St Andrews Bay SPA.

Black rat eradication on Inchcolm

Table 10 screens in all qualifying interests of the Forth Islands SPA and Outer Firth of Forth and St Andrews Bay SPA for LSE with respect to disturbance associated with the eradication and immediate monitoring and long-term monitoring phases. Table 11 concludes no adverse effect on site integrity for all features with respect to disturbance, which we consider is reasonable.

However, as included in our advice on the EIAR (Appendix E), the possible risk of incidental poisoning of gulls, in particular herring gulls, from these SPA populations should also be scoped in, noting that existing tracking data confirms use of Inchcolm in winter by herring gulls from within the Forth islands SPA (BTO data, unpublished). Given adoption of suitably evidenced mitigation measures to minimise risk of gulls being able to access poison baits or poisoned rats, it should be valid to conclude no adverse effect on site integrity. However, more information needs to be presented to support appropriate assessment of this potential impact pathway.

NatureScot
representation on ornithology

NatureScot
Scotland's Nature Agency
Buidheann Nàdair na h-Alba

Emma Lees
Scottish Government
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

31 March 2023

Our ref: CNS REN OSWF Berwick Bank – Application

By email only: MS.MarineRenewables@gov.scot

Dear Emma,

BERWICK BANK OFFSHORE WIND FARM

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND MARINE LICENCE UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010

ADVICE ON ORNITHOLOGY IMPACT ASSESSMENT

Thank you for consulting NatureScot on the proposed Berwick Bank Offshore Wind Farm, located in the Outer Firth of Forth Round 3 Zone. The consultation includes an accompanying derogation package following advice provided to the applicant during pre-application. The proposal comprising a project design envelope approach, includes up to 307 wind turbines (tip height 355m) with an installed capacity of 4.1GW and proposed 35-year operational lifetime.

In our response sent to Marine Scotland on 21st February 2023, we provided advice on all receptors for which we have a remit with respect to the Environmental Impact Assessment (EIA) and the Report to Inform Appropriate Assessment (RIAA) other than for ornithological interests. Our advice on ornithology is detailed below. Our advice on the derogation package is provided in a separate letter. Thank you for granting an extension to the consultation deadline.

NatureScot advice

The EIA and RIAA assessments undertaken have been completed to a good standard, largely following the advice provided during the Scoping / Roadmap process, however, they show extremely high impacts for several of the seabird species assessed, particularly for kittiwake, guillemot, razorbill, puffin and gannet at several Special Protection Areas (SPAs) for project alone and in-combination impacts.

The magnitude of impacts predicted are due to the extremely high densities of birds found within the proposed development area. **The impacts predicted for this site are an order of magnitude greater, and across more species than we have seen for any other offshore wind farm application in Scotland.**

Report to Inform the Appropriate Assessment (RIAA)

As Marine Scotland is the competent authority, our advice is provided to assist with the Appropriate Assessment in considering the impacts on protected interests of European Sites.

With respect to Scottish SPAs, we agree with the assessment within the RIAA (Part 3 – SPA Assessment – 9 December 2022) that there will be an Adverse Effect on Site Integrity for the following SPAs and qualifying (breeding) features, either alone or in-combination as a result of displacement effects (auk species only) or combined displacement and collision mortality:

- Buchan Ness to Collieston Coast SPA for kittiwake;
- East Caithness Cliffs SPA for kittiwake, razorbill, breeding seabird assemblage;
- Forth Islands SPA for guillemot, kittiwake, puffin, razorbill, breeding seabird assemblage;
- Fowlsheugh SPA for guillemot, kittiwake, razorbill, breeding seabird assemblage;
- North Caithness Cliffs SPA for kittiwake, breeding seabird assemblage;
- Outer Firth of Forth and St Andrews Bay Complex SPA for guillemot, kittiwake, puffin, breeding seabird assemblage;
- St Abb's Head to Fast Castle SPA for guillemot, kittiwake, razorbill, breeding seabird assemblage;
- Troup, Pennan and Lion's Heads SPA for kittiwake.
- West Westray SPA for kittiwake.

Furthermore, there are a number of SPAs and qualifying features for which we disagree with the conclusion provided within the RIAA. We have concluded Adverse Effect on Site Integrity (or in some instances have been unable to conclude No Adverse Effect on Site Integrity), either alone or in-combination for combined displacement and collision mortality for the following sites and qualifying features:

- Forth Islands SPA for gannet;
- Hermaness, Saxa Vord and Valla Field SPA for gannet;
- Outer Firth of Forth and St Andrews Bay Complex SPA for gannet;
- Outer Firth of Forth and St Andrews Bay Complex SPA (non-breeding) for razorbill, kittiwake, guillemot and seabird assemblage;
- Troup, Pennan and Lion's Heads SPA for razorbill and breeding seabird assemblage;
- West Westray SPA for breeding seabird assemblage (kittiwake).

In addition, insufficient information was provided within the assessment to ascertain No Adverse Effect on Site Integrity for the Outer Firth of Forth and St Andrews Bay Complex SPA with respect to:

- Disturbance effects from construction and operational vessel activity alone and in-combination with consented Forth & Tay wind farms for common scoter, velvet scoter, red-throated diver, great northern diver and shag; further information will determine whether mitigation or compensation is required.

As such we object to this proposal.

The largest impacts are predicted to be from the project alone on kittiwake and guillemot, particularly with respect to St Abb's Head to Fast Castle, Forth Islands and Fowlsheugh SPAs. Please see Appendix A (RIAA) for further advice.

For the following SPAs we are aware you sought advice from Natural England:

- Flamborough and Filey Coast SPA
- Farne Islands SPA
- Coquet Island SPA

It will be important to consider the advice from both NatureScot and Natural England to understand the impacts across the UK network of European Sites when completing your Appropriate Assessment.

Environmental Impact Assessment (EIA)

Broadly, we agree with the assessment provided in the EIA (as per Volume 2, Chapter 11: Offshore and Intertidal Ornithology). Whereby we have concluded impacts are significant in EIA terms, for:

- guillemot (project alone and in-combination) through displacement;
- razorbill (in-combination) through displacement;
- kittiwake (in-combination) through collision and displacement;
- gannet (in-combination) through collision and displacement.

As such we object to this proposal.

Ornithological significance

The ornithological significance of the proposed development area can be illustrated when considered against JNCC SPA site selection guidance. Figures for kittiwake, guillemot, gannet and razorbill meet the thresholds of either 1% of the relevant biogeographic population or 20,000 individuals for breeding and non-breeding season. The area would qualify for SPA designation for these species in its own right, and combined with the neighbouring Outer Firth of Forth and St Andrews Bay Complex SPA, would also qualify under breeding assemblage.

Please see Appendix B (Baseline) for further advice.

Highly Pathogenic Avian Influenza (HPAI)

The ornithology assessment was largely compiled prior to the 2022 seabird breeding season. This was driven by the applicant's original submission timeline of May 2022 and as such reflects the limited knowledge of effects and / or advice provided during the Scoping / Roadmap process on HPAI and subsequent requirements for assessment. Key sites and species assessed within the application have since been significantly affected by HPAI, although the full magnitude of impacts has not yet been realised (Philip and Tyler, 2022)[1]. We don't yet know what effect HPAI may have in the forthcoming breeding season(s). As we cannot yet quantify the impact from these mass mortality events, our assessment of impacts is more precautionary for those species which we know have been significantly impacted. These include gannet, guillemot, razorbill, kittiwake and puffin.

Please see Appendix A (RIAA) and B (Baseline) for further advice.

Assessment Approach

Overall, the ornithology technical reports and assessments have provided an appropriate level of information, including baseline data and contextual information across key impact and development stages, as agreed during the Scoping / Roadmap process (Scoping A & B). While we have predominantly relied on the Scoping Approach, we have also reviewed the Developer Approach assessment for context. We disagree that the Scoping Approach is overly precautionary as it reflects current methods and evidence as agreed at the time of the Scoping / Roadmap process.

Please see Appendix C (Ornithological Assessment) for our evaluation of the assessment for collision risk, displacement and population level effects as well as methods used to apportion impacts.

[1] Philip, E. and Tyler, G. 2022. Weathering the storm: a policy response. Surveillance and monitoring responses to Highly Pathogenic Avian Influenza, a workshop at Cork Seabird Conference (2022) - YouTube

Further information and advice

We hope this advice is of assistance. If further information or advice is required please contact Karen Taylor (karen.taylor@nature.scot; 0131 316 2693) in the first instance for any further advice.

Yours sincerely,

[Redacted]

Nick Halfhide
Director of Nature and Climate Change

CC : Natural England and JNCC

NatureScot ORNITHOLOGY ADVICE FOR BERWICK BANK OFFSHORE WIND FARM

APPENDIX A – REPORT TO INFORM THE APPROPRIATE ASSESSMENT (RIAA)

In general, the Report to Inform the Appropriate Assessment (Part 3 – SPA assessment) provides sufficient detail on which to base the assessment and clearly lays out the consideration of Likely Significant Effect (LSE) and (where appropriate) conclusion of Adverse Effect on Site Integrity (AEOSI) for each SPA and qualifying feature. The technical appendices and annexes presented to inform the RIAA are of good quality, are clear and consistent in content and presentation, have followed recommended guidance and advice and have presented in good faith the impacts predicted. As a result, we can be confident in the predicted impacts, although the assessment's interpretation of the implications of those impacts (i.e. whether or not there is AEOSI) is less reliable.

The RIAA assesses impacts to 38 SPAs, of which 20 are breeding seabird colony SPAs. Impacts predicted for the proposal are high for a number of species with a conclusion of **AEOSI for 10 European Sites** reached. This is primarily due to the high densities of birds using the site as discussed above.

Table 3.1 (RIAA – Part 3 – SPA Assessment) provides a summary of the sites and features which were determined during the pre-application process to have LSE.

Breeding seabird colony SPAs

Table 1 below, has been compiled by NatureScot to provide a summary of those SPAs for which we consider an AEOSI is likely either from project alone impacts or in-combination with consented Forth & Tay wind farms and /or wind farms located elsewhere in the North Sea (UK). Please note we have not used a threshold to reach our conclusion, instead our assessment includes aspects of precaution and whether or not sites and species have been impacted by HPAI. The table below provides the following outcomes and is colour coded accordingly (see information within Table caption):

- Our **Overall NatureScot conclusion** on AEOSI which is based on Population Viability Assessment (PVA) outputs derived from the **Scoping Approach** (A & B).
- Our assessment of the PVA outputs derived from the **Developer Approach** and whether or not we consider an AEOSI to be likely.

To note, those sites and features for which No AEOSI has been concluded are not listed within this table. Also note there are a multiple mistakes in Table 6.1 (RIAA – Part 3 – SPA Assessment) which do not match the conclusion provided in the written narrative for each site and species.

Table 1: Summary of NatureScot advice on AEOSI (breeding). Assessment is provided based on PVA output values for both the Developer and Scoping Approaches. Our overall conclusion is based on the Scoping Approach values.

*Orange shaded cells indicate where NatureScot and the RIAA concluded AEOSI (also marked by AEOSI *) – note however for breeding bird assemblages with multiple functionally linked species, it has not always been possible to use this nomenclature.*

Light green shaded cells indicate where NatureScot disagree with the conclusion provided in the RIAA.

x indicates No AEOSI. P indicates potential/probable AEOSI which we wish to highlight. n/a indicates this scenario was not assessed.

Species (impact pathway)	SPA	Developer approach			Scoping approach			Overall NatureScot conclusion
		Alone	Forth & Tay	North Sea (UK)	Alone	Forth & Tay	North Sea (UK)	
Guillemot (displacement)	Forth Islands	x	n/a	AEOSI	AEOSI*	n/a	AEOSI*	AEOSI alone and in-combination
	Fowlsheugh	x	n/a	P	AEOSI *	n/a	AEOSI *	AEOSI alone and in-combination

	St. Abb's Head to Fast Castle	AEOSI	n/a	AEOSI	AEOSI *	n/a	AEOSI *	AEOSI alone and in-combination
Kittiwake (collision and displacement)	Buchan Ness to Collieston Coast	x	x	AEOSI	x	x	AEOSI *	AEOSI in-combination
	East Caithness Cliffs	x	n/a	AEOSI *	x	n/a	AEOSI *	AEOSI in-combination
	Forth Islands	AEOSI	AEOSI *	AEOSI *	AEOSI	AEOSI *	AEOSI *	AEOSI alone and in-combination
	Fowlsheugh	AEOSI	AEOSI *	AEOSI *	AEOSI	AEOSI *	AEOSI *	AEOSI alone and in-combination
	St Abb's Head to Fast Castle	AEOSI *	AEOSI *	AEOSI *	AEOSI *	AEOSI *	AEOSI *	AEOSI alone and in-combination
	Troup, Pennan and Lion's Head	x	n/a	AEOSI	x	n/a	AEOSI *	AEOSI in-combination
	West Westray	x	n/a	AEOSI *	P	n/a	AEOSI *	Unable to conclude No AEOSI Alone (CPS 0.915-0.936 CPS). AEOSI in-combination
	North Caithness Cliffs	x	n/a	AEOSI *	x	n/a	AEOSI *	AEOSI in-combination
Puffin (displacement)	Forth Islands	x	n/a	x	x	n/a	AEOSI *	AEOSI in-combination
Razorbill (displacement)	East Caithness Cliffs	x	n/a	x	x	n/a	AEOSI *	AEOSI in-combination
	Forth Islands	x	P	AEOSI	P	AEOSI *	AEOSI *	Unable to conclude No AEOSI Alone (CPS 0.946 and 0.904). AEOSI in-combination
	Fowlsheugh	x	x	x	x	AEOSI *	AEOSI *	AEOSI in-combination
	St Abb's Head to Fast Castle	x	x	x	AEOSI	AEOSI	AEOSI *	AEOSI alone and in-combination
	Troup, Pennan and Lion's Head	x	x	x	x	x	AEOSI	AEOSI in-combination
Gannet (collision and displacement)	Forth Islands	x	AEOSI	AEOSI	x	AEOSI	AEOSI	AEOSI in-combination
	Hermaness, Saxa Vord & Valla Field	x	x	x	x	x	P	Unable to conclude No AEOSI in-combination (CPS 0.941 and 0.920)
Breeding seabird assemblage[2]	St Abb's Head to Fast castle[3]	AEOSI *	AEOSI *	AEOSI *	AEOSI *	AEOSI *	AEOSI *	AEOSI alone and in-combination (kittiwake, razorbill, guillemot)
	Forth Islands[4]	AEOSI	AEOSI	AEOSI	AEOSI	AEOSI	AEOSI	AEOSI alone and in-combination (kittiwake, guillemot, razorbill, puffin and gannet)

[2] Breeding seabird assemblage conclusions are based on the assessment for named qualifying features of the assemblage.
[3] AEOSI determined for kittiwake and guillemot by both Scoping & Developer Approach for alone and in-combination; AEOSI determined for razorbill for alone and in-combination by Scoping Approach.
[4] AEOSI determined alone and in-combination for kittiwake by both Scoping & Developer Approach; AEOSI determined alone for guillemot by Scoping and in-combination by both Scoping & Developer Approach; unable to conclude no AEOSI for razorbill alone by Scoping Approach, and AEOSI in-combination by both Scoping & Developer Approach.

	Fowlsheugh[5]	AEOSI	AEOSI	AEOSI	AEOSI	AEOSI	AEOSI	AEOSI alone and in-combination (kittiwake, guillemot, razorbill)
	Troup, Pennan and Lion's Head[6]	x	x	x	x	x	AEOSI	AEOSI in-combination (razorbill and kittiwake)
	East Caithness Cliffs[7]	x	x	AEOSI	x	x	AEOSI	AEOSI in-combination (kittiwake and razorbill)
	North Caithness Cliffs[8]	x	x	AEOSI *	x	x	AEOSI *	AEOSI in-combination (kittiwake)
	West Westray[9]	x	x	AEOSI	P	x	AEOSI	AEOSI in-combination (kittiwake)

Outer Firth of Forth and St Andrew Bay Complex SPA (OFFSAB)

Assessment of impacts to the Outer Firth of Forth and St Andrews Bay Complex marine SPA were undertaken with particular focus on the cable laying works and associated disturbance. The assessment provided is however very high level and does not provide sufficient information to consider all relevant impact pathways and species. It also incorrectly cites existing vessel traffic within the site as a reason that vessels associated with the proposed wind farm development will not have an AEOSI. Impacts also need to be assessed across all relevant Conservation Objectives for the site.

Disturbance from vessels

The assessment of the impacts from vessels within the OFFSAB marine SPA is insufficient. This is in part because the RIAA appears to only assess vessels associated with cable laying activities. However, the volume of additional vessels (i.e. 11,484 vessel round trips over the construction phase) within the development site suggests that disturbance impacts to qualifying species over a period of several years, from vessels associated with construction works at the development site may be likely. There is also potential for cumulative effects from concurrent construction of other renewable developments within the region. However, insufficient information has been provided to enable assessment of this impact pathway. Indicative information on the routes likely to be taken by vessels (as well as helicopter and / or drone usage) going to and from the development site would have been helpful in informing our assessment across both the construction and operational periods, however this was not provided (Figure 8.1, Appendix 25). Such that:

- We are unable to conclude No AEOSI from vessel disturbance associated with construction activities and /or during operation due to insufficient information.

Species sensitive to vessel disturbance

In addition, Chapter 11 (Volume 2 – Chapter 11: Offshore and Intertidal Ecology) screens out several species from the assessment which are known to be sensitive to vessel disturbance as they are present in low numbers within the development site. However, it is unclear what routes construction and or

[5] AEOSI determined for guillemot alone by Scoping Approach and in-combination by both Developer and Scoping Approaches; for kittiwake alone and in-combination by both Scoping and Developer Approaches; AEOSI in-combination for Razorbill by Scoping Approach only.
[6] AEOSI determined for razorbill in-combination by Scoping Approach only; AEOSI in-combination determined for kittiwake by Scoping and Developer Approach.
[7] AEOSI determined for kittiwake by both Scoping & Developer Approach, AEOSI for razorbill determined by Scoping Approach only.
[8] AEOSI in-combination determined for kittiwake by both Scoping & Developer Approach.
[9] Unable to conclude no AEOSI alone by Scoping Approach; AEOSI in-combination determined for kittiwake by both Scoping & Developer Approach.

operational vessels will take to reach the development site, including whether vessels will pass through the marine SPA to reach the development site. This precludes assessment of the potential impacts and consequently:

- We cannot conclude No AEOSI for common scoter, velvet scoter, red-throated diver, great northern diver and shag due to insufficient information.

Species assessments from contributing (functionally linked) breeding colony SPAs

For breeding qualifying features, the viability of the species within the Outer Firth of Forth and St Andrews Bay Complex marine SPA is intrinsically linked to their ability to access and use breeding habitat in areas of functionally linked land outwith the marine site, in addition to the ability of the site to support breeding adult survival and chick-rearing (i.e. Conservation Objection 2a). The assessment of impacts to the OFFSAB marine SPA breeding seabird qualifying features was therefore undertaken with respect to the functionally linked breeding colony SPAs[10]. Table 2 provided below, summarises those seabird qualifying feature for which we concluded AEOSI alone or in-combination for these contributing colony SPAs. Colour coding indicates where our assessment has differed from that presented in the RIAA.

Table 2: Summary of NatureScot advice on AEOSI for OFFSAB marine SPA (breeding features). Our conclusion is based on the Scoping Approach PVA values.

Orange shaded cells indicate where NatureScot and the RIAA concluded AEOSI. Light green shaded cells indicate where NatureScot disagree with the conclusion provided in the RIAA.

Qualifying feature – breeding season	Colony SPA	Colony SPA Conclusion
Kittiwake	Forth Islands	AEOSI alone and in-combination
	St Abbs Head to Fast Castle	AEOSI alone and in-combination
	Fowlsheugh	AEOSI alone and in-combination
	Buchan Ness to Collieston Coast	AEOSI in-combination
	Troup, Pennan and Lion's Heads	AEOSI in-combination
Guillemot	Forth Islands	AEOSI alone and in-combination
	St Abbs Head to Fast Castle	AEOSI alone and in-combination
	Fowlsheugh	AEOSI alone and in-combination
Puffin	Forth Islands	AEOSI in-combination
Gannet	Forth Islands	AEOSI in-combination
Seabird assemblage, breeding	As above	AEOSI alone and in-combination

Non-breeding season qualifying features

The assessment undertaken in the RIAA accounts for non-breeding season impacts via additional annual mortality estimated by combining breeding and non-breeding season mortality estimates and summing the apportioned collision and/or displacement mortality estimates into a combined estimate for each species/colony SPA combination. For the marine SPA populations, these impacts are not necessarily additive, given some of the wintering populations may not be in the marine SPA and / or the summer breeding colonies that have been assessed through apportioning.

The OFFSAB marine SPA has a number of seabird non-breeding qualifying features. Table 3 provided below, summarises those non-breeding seabird qualifying features for which we concluded AEOSI alone or in-combination (or have been unable to conclude No AEOSI):

[10] Conservation and Management Advice (2022) Outer Firth of Forth and St Andrews Bay Complex Special Protection Area (SPA)

Table 3: Summary of NatureScot advice on AEOSI for OFFSAB marine SPA for non-breeding seabird features.

Qualifying feature – non-breeding	NatureScot feature conclusion
Razorbill	Unable to conclude No AEOSI (see text below)
Kittiwake	AEOSI alone and in-combination
Guillemot	AEOSI alone and in-combination
Seabird assemblage, non-breeding	AEOSI alone and in-combination (kittiwake and guillemot)

Razorbill (non-breeding)

Razorbills wintering in UK waters are thought to derive mainly from breeding populations in the UK, Iceland, Faroe Islands and Norway (Furness, 2015). They are present in the OFFSAB marine SPA throughout the year and may visit breeding colonies in the pre-breeding period from their wintering sites. Quantification of impacts to non-breeding razorbill (qualifying or named assemblage feature) is particularly difficult in light of this life history characteristic and lack of a site reference population. Our assessment has considered the conclusions reached in the EIA assessment which indicate significant in-combination effects taking account of the Forth and Tay and North Sea wind farms. We acknowledge this is the first occasion that consideration of a non-breeding population from a marine SPA has been considered in casework and it raises the potential requirement for further research work to be done, in particular for razorbill.

Migratory Waterbirds SPAs (& Ramsar Sites[11])

The assessment provided indicates that the application does not pose significant risk from collision or barrier effects to any migratory waterbird qualifying features as a result of the low levels of predicted additional mortality. As such we accept that there will be No AEOSI for any of the screened in waterbird qualifying features for any of the following SPAs / Ramsar sites:

- Firth of Forth SPA;
- Montrose Basin SPA;
- Firth of Tay and Eden Estuary SPA;
- Ythan Estuary, Sands of Forvie and Meikle Loch SPA;
- Cameron Reservoir SPA;
- Greenlaw Moor SPA;
- Loch of Kinnordy SPA;
- Din Moss - Hoselaw Loch SPA;
- Fala Flow SPA;
- Loch Leven SPA;
- Gladhouse Reservoir SPA;
- South Tayside Goose Roosts SPA;
- Westwater SPA;
- Slamannan Plateau SPA.

We are aware you have sought advice from Natural England with respect to the following SPAs / Ramsar sites:

- Northumbria Coast SPA and Ramsar Site
- Lindisfarne SPA and Ramsar Site
- Holburn Lake and Moss SPA and Ramsar Site

[11] https://www.gov.scot/publications/implementation-of-scottish-government-policy-on-protecting-ramsar-sites/

Minor comments

The following errors were picked up during our review of the RIAA:

- Common scoter is missing from Table 3.1 (RIAA – Part 3 – SPA Assessment) with respect to Outer Firth of Forth and St Andrews Bay Complex SPA, but has been carried forward in the assessment, as per advice agreed during the Scoping / Roadmap process.
- There is an error in Table 6.1 (RIAA – Part 3 – SPA Assessment) with respect to the kittiwake qualifying feature for West Westray SPA - AEOSI should be displayed for North Sea in-combination for the Scoping and Developer Approaches which is clear from the explanatory text.

NatureScot ORNITHOLOGY ADVICE FOR BERWICK BANK OFFSHORE WIND FARM

APPENDIX B – BASELINE ORNITHOLOGY

Analysis of the digital aerial survey campaign and generation of species site-specific density estimates are provided in Appendix 11.1 Baseline Ornithological Technical Report and associated annexes.

Overall, the baseline ornithology surveys are of good quality and are sufficient to base the assessment on. Surveys cover an adequate duration and cover complete seasons, using appropriate methods as per our guidance, with any deviations agreed via the Scoping / Roadmap process.

Baseline Characterisation

Two years of surveys were undertaken (March 2019 – April 2021), with a total of 25 surveys, covering the array area plus a 16km buffer. For some months where no survey was undertaken (either due to weather or Covid restrictions) some flights were assigned from different months in order to ensure that each month had two surveys (as per Table 3.2, Appendix 11.1). This, together with the approach used to assign unidentified birds recorded, follows our advice as agreed during the Scoping / Roadmap process - as do methods used for correction factors and adjustments for survey coverage and availability bias. Our guidance for baseline site characterisation recommends the use of MRSea for density modelling approaches, however, for this application design-based density estimates were used rather than densities generated from MRSea. These were taken forward into the assessment reflecting discussion and agreement reached during the Scoping / Roadmap process in light of difficulties the applicant was experiencing at the time with use of MRSea.

Over the 2 years of surveys, 41 species were observed. Guillemots were the most abundant species, with kittiwake, razorbill, puffin and gannet also abundant.

Ornithological significance

The data derived from the site-specific digital aerial surveys indicate that the offshore ornithology study area would meet the criteria under Article 4.2, stage 1.2 of the JNCC site selection guidelines for designation as an SPA by meeting the threshold of either 1% of the relevant biogeographic population (as per Kober et al. 2010[12], using Seabird 2000 data) or 20,000 individuals - whichever number is lower)[13] for the following species

- Kittiwake (breeding and non-breeding season) > 20,000 individuals
- Guillemot (breeding and non-breeding season) > 20,000 individuals
- Gannet (breeding season) > 1% of biogeographic population
- Razorbill (breeding and non-breeding season) > 1% of the biogeographic population

The area would qualify for SPA designation for these species in its own right; however, it is also likely that this area, combined with the Outer Firth of Forth and St Andrews Bay Complex SPA would mean that several species in the offshore ornithology area would also qualify under the breeding seabird assemblage criterion. **This information is provided in order to show the ornithological significance of this site only. Detail is not provided with a view to SPA designation and is contextual only.** To note also, our analysis of this significance is based on Seabird 2000 data rather than more up to date information and it does not account for losses experienced as a result of HPAI. As many of these population have declined, the

[12] Kober, K., Webb, A., Win, I., O'Brien, S., Wilson, L.J., and Reid, J.B. 2010. An analysis of the numbers and distribution of seabirds within the British Fishery Limit aimed at identifying areas that qualify as possible marine SPAs. JNCC Report No. 431.
[13] This assessment is in line with what was undertaken for the site selection and is based on population estimates from seabird 2000, which is a 20 year old survey. Given the population trends since the Seabird 2000 census was undertaken, it is likely that the biogeographic populations have declined and that consequently these proportions would be higher if based on more recent data.

biogeographic population proportions are likely to be higher than we have described above. The importance of the site is also captured in the desk-based study as described in Appendix 11.1.

The same species and high densities are recorded through several different surveys within this region, (e.g. Berwick Bank boat-based surveys, Seagreen boat-based surveys, Seagreen pre-construction surveys, JNCC Seabirds at Sea) suggesting these species are using this region regularly, and would therefore meet the regularity test necessary as part of any site designation consideration. It is likely that the birds within the offshore ornithology study area are using the site for foraging based on sandeel densities identified within the site by benthic subtidal surveys.

Highly Pathogenic Avian Influenza (HPAI)

A number of seabird species have been significantly affected by HPAI although the full magnitude of impacts has not yet been realised (Philip and Tyler, 2022). This has implications not just for the baseline (reference population) but for the context within which impacts from the wind farm are assessed. Uncertainty remains as to the scale of impact: where and for which species and for how long. This necessitates greater precaution in our assessment, particularly for the following species / sites:

- Gannet at Gamrie and Pennan Coast SSSI and Bass Rock (Forth Islands SPA)
- Guillemot, razorbill and puffin at St Abb's Head to Fast Castle SPA and on the Isle of May (Forth Islands SPA)
- Kittiwake at East Caithness Cliffs SPA
- We are also aware of guillemot, kittiwake and razorbill at the Farne Islands, but Natural England's advice should be sought regarding these species at this site.

Please see advice in Appendix A (RIAA) where we consider a conclusion of No AEOSI at certain SPAs to be unlikely when considered in light of potential in-combination impacts from HPAI.

Minor comment

The baseline report incorrectly identifies guillemot as an Annex 1 species - only the Iberian sub-species (*Uria aalge ibericus*) is listed as an Annex 1 species. This has no impact on the assessment of guillemot and the conclusions reached.

NatureScot ORNITHOLOGY ADVICE FOR BERWICK BANK OFFSHORE WIND FARM

APPENDIX C – NatureScot EVALUATION OF ORNITHOLOGICAL ASSESSMENT

Impacts on ornithology receptors are higher than we have seen for any other offshore wind development in Scottish waters, and this is largely due to the abundance and densities of birds within the development array area, but also the scale of the proposed development (see Appendix B).

Our advice is based on our review of the following documents and their associated annexes:

- Appendix 11.2: Intertidal, Nearshore and Offshore Cable Corridor Ornithology report
- Appendix 11.3: Ornithology Collision Risk Modelling Technical report
- Appendix 11.4: Ornithology Displacement Technical report
- Appendix 11.5: Ornithology Apportioning Technical report
- Appendix 11.6: Ornithology Population Viability Analysis Technical report
- Chapter 20: Interrelated effects
- Appendix 25: Outline Navigational Safety and Vessel Management Plan

Precaution within the Scoping assessment

For several species, the narrative provided by the applicant states that potential impacts are of a scale which would be considered likely to result in an adverse effect on the SPA population. They also indicate that the level of effects assumed by the Scoping Approach are overly precautionary. We disagree.

The Scoping Approach assessments have elements of precaution built-in, this is in line with the consenting process for Scottish offshore wind farm applications and the approach agreed during the Scoping / Roadmap process. This was informed by the most up-to date, published information as agreed by all parties.

We are aware that our advice differs from the approach taken in the Norfolk Vanguard wind farm assessment which has informed much of the Developer Approach. In addition, this approach contrasts with Natural England's offshore wind farm guidance, which in our view, adds additional layers of precaution e.g. inclusion of sabbaticals, use of stable age structure for apportioning age classes, assessing displacement during construction and differing displacement mortality rates which are likely to make the predictions higher.

Alongside this, due to the timing of assessment and write up, the applicant has not considered the outbreak of Highly Pathogenic Avian Influenza (HPAI), as agreed by all parties during the Scoping / Roadmap process. This outbreak which was first recorded in 2021, and subsequently affected more species and colonies in 2022, has created a high level of uncertainty around population trends, particularly down the East Coast of Scotland. The two Scoping Approaches allow us to interpret with caution, a range of values rather than putting too much confidence in a single predicted value. The range of values have then been used to inform our advice and conclusions.

Taking all of these things into account, we consider our approach to be proportionate.

Collision risk

Seabirds and gull species

Two collision risk modelling (CRM) approaches were used; deterministic and stochastic. The stochastic CRM is presented for comparative purposes only as discussed and agreed during the Scoping / Roadmap process. Collision has been assessed for the following species; kittiwake, gannet, herring gull, lesser black-

backed gull, Arctic tern, common tern, little gull and great skua using the worst case scenario (CRM option 2).

As per the Scoping Approach, maximum monthly densities were required to address the variation in baseline densities particularly in light of gaps in survey coverage. We are content with the biological parameters and avoidance rates used. Noting that during the Scoping / Roadmap process it was agreed that Bowgen & Cook (2018)[14] could be presented alongside the SNCB avoidance rates, reflecting our current position, based on available published evidence.

We agree with the worst-case design scenarios (WCS) identified for CRM - in all cases this was 14 MW x 307 turbines using the deterministic Band (2012) model. The annual collisions for each species, based on both the Scoping and Developer Approaches, are provided below in Table 4, with the Scoping Approach taken forward into the PVA assessment.

Table 4: WCS mortality estimates for each species using Option 2 from the deterministic Band CRM replicated here as per Appendix 11.4, Table 4.1, for both the Scoping and Developer Approaches. No Adverse Effect on Site Integrity was concluded for those qualifying species shaded lilac.

Species	Estimated annual collisions – Option 2	
	Scoping Approach	Developer Approach
Kittiwake	986	685
Herring gull	50	30
Lesser black-backed gull	9	6
Gannet	191	153
Arctic tern	14	8
Common tern	9	6
Little gull	5	2
Great skua	0.35	0.17

See Appendix A (RIAA) for advice on AEOSI for those sites with kittiwake and gannet qualifying features for which collision risk modelling was undertaken as part of the assessment.

Migratory waterbirds

A collision assessment was undertaken to assess the impacts of the project on migratory waterbirds. The assessment was conducted based on the WWT (2014) report[15], as per the Scoping / Roadmap advice, with species not included in the 2014 review assessed qualitatively.

The following 16 species were assessed: pink footed-goose, teal, tufted duck, oystercatcher, lapwing, golden plover, curlew, woodcock, black-headed gull, common gull, great black-backed gull, Sandwich tern, Arctic skua, red-throated diver, great northern diver and shag. An avoidance rate of 98% was used for all species with the exception of pink-footed goose, for which 99.8% was used, following NatureScot guidance. For seabirds the passage population was adjusted to account for collisions at each wind farm, modelled in order from north to south in autumn and vice versa in spring.

Please see Appendix A (RIAA) for advice on AEOSI for those sites / qualifying features for which migratory collision risk modelling was undertaken as part of the assessment.

[14] Bowgen, K. & Cook, A., (2018), Bird Collision Avoidance: Empirical evidence and impact assessments, JNCC Report No. 614, JNCC, Peterborough, ISSN 0963-8091.

[15] WWT. (2014). Migratory species collision risk modelling assessments. Strategic assessment of collision risk of Scottish offshore wind farms to migrating birds. A Report to the Scottish Government

Displacement

Displacement impacts are considered for kittiwake, guillemot, razorbill, puffin and gannet as agreed during the Scoping / Roadmap process.

Due to issues experienced by the applicant when undertaking the assessment of displacement effects within SeabORD, it was agreed during the Scoping / Roadmap process that the Matrix approach would be used as the primary method for the assessment of distributional responses (displacement / barrier effects). Some modelling was achieved using seabORD (as presented in Appendix 11.4, Annex D), however it was the Matrix approach outputs that were used to undertake the assessment of population level effects via PVA.

In the application of the matrix-based approach, the assessment used two sets of displacement and mortality rates to estimate displacement mortalities (Appendix 11.4, Table 3.4) as advised during the Scoping / Roadmap process (Scoping A and B), which follows current NatureScot guidance[16]. In addition, assessment was included for differing rates as per the Developer Approach.

Analysis of GPS tracking of gannet was used to inform the displacement and barrier effects for this species (as per Appendix 11.4, Annex E).

Seasonal mean peak population estimates, including both birds on the water and in flight, have been used in the impact assessment for displacement as advised by SNCBs.

The displacement impact assessment provides population estimates for the development array + 2km buffer as well as estimates for the development array alone, as per SNCB displacement guidance. Predicted bird mortality estimates from displacement and barrier effects are provided below in Table 5.

Table 5: Predicted bird mortality from displacement and barrier effects - all figures are replicated from Appendix 11.4, Table 4.23. Grey shaded cells where assessment is not required / undertaken.

Species	Development Array		Development Array + 2km buffer				
	Breeding season	Non-breeding season	Breeding season	Non-breeding season	Spring migration	Winter	Autumn migration
Scoping Approach							
Kittiwake	52 / 155	48 / 143	64 / 191		41 / 124		34 / 101
Guillemot	1075 / 1791	205 / 613	1335 / 2225	266 / 795			
Razorbill	55 / 92	53 / 157	73 / 122		45 / 135	8 / 25	53 / 159
Puffin	62 / 102		82 / 136				
Gannet	26 / 76	8 / 22	34 / 100		2 / 6		11 / 32
Developer Approach							
Kittiwake	104		127				
Guillemot	299	171	371	221			
Razorbill	16	44	21		37	7	44
Puffin	17		23				
Gannet	26	8	34		2		11

See Appendix A (RIAA) for advice with respect to population level impacts from displacement effects in respect to European Sites.

[16]NatureScot (2023) Guidance Note 8: Guidance to support Offshore Wind Applications: Marine Ornithology Advice for assessing the distributional responses, displacement and barrier effects of Marine birds

Apportioning

Apportioning of impacts to SPAs within foraging range of the development array were undertaken as per our interim guidance note (2018)[17] for kittiwake, herring gull, lesser black-backed gull, guillemot, razorbill, puffin and gannet during the breeding and non-breeding seasons (with some exceptions noted below), and as agreed during the Scoping / Roadmap process:

- Guillemot, razorbill and kittiwake were assessed using Marine Scotland's Apportioning Tool (Butler et al., 2020)[18];
- No apportionment of the impact for puffin during the non-breeding season;
- Biologically Defined Minimum Population Scales (BDMPS)[19] was used for all other species in the non-breeding season except for guillemot and herring gull (see below);
- A regional population was used for guillemot to apportion non breeding season impact. This was defined as the breeding season mean max foraging range +1 SD;
- Similarly, a regional approach was used for herring gull and a correction factor was applied to account for the influx of birds from outside Scotland during the wintering period, based on numbers of birds estimated from overseas populations within BDMPS;
- Apportionment of Arctic tern collisions was not undertaken;
- Isle of May specific correction factors were used for guillemot and razorbill to convert counts of individuals to estimates of population size. We cannot find agreement on this from the Scoping / Road map process, however, we agree this value can be used for the specific site it was generated for.

The assessment measures distance to the colony by the geometric centre of the wind farm to the closest point on the boundary of the colony. The advice within our interim apportioning guidance advocates a geometric centre of the wind farm to geometric centre of the colony. However, the approach taken within the assessment is acceptable.

Population Viability Analysis (PVA)

The assessment uses the Natural England PVA tools (Searle et al. 2019)[20]. The population models used for the PVA are stochastic, density independent, age-structured Leslie matrix models. The models use matched runs between impacted and unimpacted scenarios and use Monte Carlo simulations to incorporate stochasticity into the model. These models are in accordance with recommended[21] methods to estimate population impacts and were parameterised using appropriate references following advice agreed during the Scoping / Roadmap process. This included adjustment to account for sabbatical birds (7% for auks, 10% for kittiwake, 10% for gannet and 35% for herring gull and lesser black-backed gull).

The assessment extracted the modelled impacts over 35 years and 50 years for project alone impacts, in-combination impacts with Forth & Tay consented wind farms and in-combination impacts for the whole North Sea area (as built and consented). The PVA models were run for 40 SPA / species combinations

[17] NatureScot. (2018). Interim Guidance on apportioning impacts from marine renewable developments to breeding seabird populations in SPAs.

[18] Butler, A., Carroll, M., Searle, K., Bolton, M., Waggitt, J., Evans, P., Rehfisch, M., Goddard, B., Brewer, M., Burthe, S. and Daunt, F. (2020). Attributing seabirds at sea to appropriate breeding colonies and populations (CR/2015/18). Scottish Marine and Freshwater Science Vol 11 No 8, 140pp. DOI: 10.7489/2006-1.

[19] Furness, R.W. (2015). Non-breeding season populations of seabirds in UK waters: Population sizes for Biologically Defined Minimum Population Scales (BDMPS). Natural England Commissioned Reports, No.164.

[20] Searle, K., Mobbs, D., Daunt, F., and Butler, A. (2019). A Population Viability Analysis Modelling Tool for Seabird Species. Centre for Ecology and Hydrology report for Natural England. Natural England Commissioned Report NECR274. Pp.23

[21] NatureScot (2023). Guidance Note 11: Guidance to support Offshore Wind Applications: Marine Ornithology - Recommendations for Seabird Population Viability Analysis (PVA)

(summary table at Appendix 11.6, Table 2.3). The use of 35 years rather than 25 years prevents the comparison of impacts with other developments that have routinely used a 25 year runtime.

The PVA models were presented using predicted mortality figures informed by the displacement and collision assessments. Due to the evidence available at the time of the Scoping / Roadmap process for species where both collision risk and displacement are considered, e.g. gannet and kittiwake, we are content that these impacts should be considered as additive.

See Appendix A (RIAA) for advice on AEOSI for those sites / qualifying features for which PVA was undertaken.

Northern Lighthouse Board

Northern Lighthouse Board

84 George Street
Edinburgh EH2 3DA

Tel: 0131 473 3100
Fax: 0131 220 2093

Website: www.nlb.org.uk
Email: enquiries@nlb.org.uk

Your Ref: Berwick Bank Offshore Wind Farm - Section 36 and Marine Licence Applications
Our Ref: AL/OPS/ML/O6_20_769

Ms Emma Lees
Marine Licensing Casework Officer
Marine Scotland – Marine Planning and Policy
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

06 January 2023

ELECTRICITY ACT 1989
The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017
The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010
The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017

MARINE AND COASTAL ACCESS ACT 2009
The Marine Works (Environmental Impact Assessment) Regulations 2007

Application For Consent Under Section 36 of the Electricity Act 1989 (as amended), Marine Licences Under Part 4 of the Marine (Scotland) Act 2010 and Marine and Coastal Access Act 2009, to Construct and Operate Berwick Bank Offshore Windfarm, off the Coast of East Lothian and the Scottish Borders

Thank you for your e-mail correspondence dated 22nd December 2022 relating to the applications submitted by **Berwick Bank Offshore Windfarm Ltd** for consent to construct and operate the Berwick Bank Offshore Windfarm, off the coast of East Lothian and the Scottish Borders.

NLB note the inclusion of Shipping and Navigation documentation within the EIA submission; in particular Chapter 13 (Shipping and Navigation), Appendix 13.1 (Navigational Risk Assessment), Appendix 26 (Outline AtoN Management Plan and Appendix 27 (Outline Lighting and Marking Plan).

Northern Lighthouse Board have reviewed the documentation associated with the application, and have no objection to the proposed development, with particular reference to the navigational safety elements of the application. Of particular interest was Section 15 (Future Case Vessel Traffic) of the Navigational Risk Assessment, highlighting potential vessel displacement as a result of the cumulative offshore windfarm developments in the Outer Firth of Forth area.

As referenced throughout these documents, NLB will continue to engage with the applicant throughout the consenting process to develop the navigational safety and AtoN management elements of the development, including the Lighting and Marking Plan.

Yours sincerely

[Redacted]

Peter Douglas
Navigation Manager

Neart na Gaoithe Offshore Wind Limited

Neart na Gaoithe Offshore Wind Limited
Atria 1, 6th floor
144 Morrison Street
Edinburgh
EH38EX
Scotland, United Kingdom

Marine Scotland Licensing and Operations Team
By email only: MS.MarineRenewables@gov.scot

Date 02/03/23

Document Reference: NNG-NNG-ECF-LET-0067

Dear Sirs,

Thank you for the opportunity to comment on the Berwick Bank Offshore Wind Farm Section 36 and Marine Licence Applications. The below comments have been made on behalf of Neart na Gaoithe Offshore Wind Limited (NnGOWL).

SSE Renewables have correctly identified that their proposed offshore export cables will cross each of the Neart na Gaoithe (NnG) offshore export cables. They have identified two specific design measures relating to these cable crossings.

1. *Crossings or laying of cables over or adjacent to known or future cables will be subject to crossing and/or proximity agreements;*
2. *Promulgation of information and crossing and/or proximity agreements regarding restricted access to NnG infrastructure.*

We agree with the requirement to have proximity agreements in place and look forward to SSE Renewables engaging with NnGOWL on this matter.

The proposed Berwick Bank export cable route bisects the direct marine route from the NnGOWL Operations and Maintenance (O&M) Base in Eyemouth and the NnG wind farm site. NnGOWL believe that the proposed construction durations for the Berwick Bank Offshore Windfarm export cables, which could occur at multiple locations along the proposed export cable route, have the potential to interfere with the operational access to the NnG windfarm from the NnGOWL O&M Base. However, this interaction has not been identified by SSE Renewables in the application. We would request that SSE Renewables looks to engage with NnGOWL to implement an agreed mechanism to prevent Berwick Bank construction activities restricting access to the NnG windfarm site by NnG O&M vessels.

We acknowledge that the Cambios connection is not included in the scope of this application, however given the proximity of this route to the NnG offshore wind farm and the EDF Renewables Blyth and Teesside offshore wind farms, we request that both NnGOWL and the EDF Renewables are also consulted on this application.

NnGOWL would be interested to receive information on any further consultation for the Berwick Bank Offshore Wind Farm.

Yours sincerely
[Redacted]

Polly Tarrant
Environment Manager (Offshore)
Neart na Gaoithe Wind Limited

Scotwind North-East and East Plan Areas

Nicholas Ritchie
26 Frederick Street
1st floor
Edinburgh
EH2 2JR
Scotland

24 February 2023

Marine Scotland
Licensing Operations Team
1A South Victoria Quay
Edinburgh
EH6 6QQ

By email: ms.marinerenewables@gov.scot

Re: Berwick Bank Wind Farm Limited (Public Notice – Berwick Bank)
Section 36 Application
Representation by projects from Scotwind North-East and East Plan Areas

Dear MS-LOT,

Thank you for the opportunity to comment on the proposals for Berwick Bank Offshore Wind Farm. I write on behalf of the projects and associated developers appended to this letter (hereby the 'projects').

Developers from the east and north-east plan areas have been engaging regularly in regional discussions regarding ornithology and compensation (without prejudice) since March and May 2022 respectively. Collectively, we have formed the North-East and East Ornithology Group (NEEOG). We are currently meeting on a quarterly basis to discuss: a) opportunities to collaborate on targeted research projects which could address evidence gaps identified in Marine Scotland's Ornithology Roadmap; and b) identify opportunities for collaborative and strategic compensation (without prejudice).

The projects have reviewed the compensation measures proposed by Berwick Bank and we provide the following comments:

1. The ScotWind projects are being developed to ambitious timetables, driven by the Scottish Government's legally binding target of reaching net zero by 2045. The ScotWind projects are vital to achieving that aim. A clear framework for developers in Scottish waters to opt into and benefit from strategic compensation is considered integral to the delivery of the capacity needed to meet Scotland's 2045 net zero target. It is important that decisions are not taken only with a view to the interim targets for 2030, potentially to the detriment of reaching the end goal of net-zero and the legally binding 2045 targets. It would be counter-productive if interim targets had that effect. The framework for strategic compensation should take account of the legally binding longer-term objectives.

2. Berwick Bank has proposed multiple compensation options. This letter focusses on the fisheries measures, comprising two options presented by Berwick Bank for SA4 fisheries management: 1 – closure of the SA4 fishery, or 2 – an ecosystem-based approach to the management of SA4. We note that the fisheries measures are not currently secured.

3. It remains unclear whether the SA4 sandeel fisheries closures and/or ecosystem-based stock management would be restricted to Scottish waters only, and we note that some key sandeel grounds within SA4 are in English waters. We would support an approach coordinated at UK

level and beyond, as management only within Scottish waters is likely to lead to negative consequences to the Special Protection Area (SPA) network beyond Scotland due to displacement to other grounds.

4. Regarding the management options put forward by Berwick Bank, there is currently a diversity of opinion between developers on how sandeel fisheries could best be managed, with acknowledgement that forage fish stock management is likely to lead to benefits for a range of receptors including seabirds, marine mammals and sandbank habitats. This diversity ranges from providing a buffer for seabird conservation purposes in stock assessments, to more discrete spatial closures.

5. If a decision is made that fisheries management measures at the scale proposed by Berwick Bank are required, the outcome is likely to significantly limit compensation options available to the projects in the short term, if required. This is due to the extent of *overcompensation* associated with Berwick Bank's proposed sandeel measures, which will significantly reduce environmental 'headroom' for compensating the projects (if required). We suggest that any fisheries management is delivered strategically, and not all allocated to a single project, with the option for monitoring/enforcement contributions to come from shared developer contributions.

6. We acknowledge that Berwick Bank alludes to in its derogation case that implementation of the proposed sandeel compensation could lead to additional 'compensation capacity' stating that sandeel measures '*provide a mechanism for compensation for impacts of future Scotwind projects*'. The challenge, however, is that this outcome is unlikely to be known within the application timeframes of the Scotwind projects in the east and north-east plan areas, and there is likely to be variability in the effects of fisheries management interventions due to pressures beyond human control.

7. It is therefore our view that we cannot rely on the outcome of a single project to inform our compensation (without prejudice) strategies. We would therefore like to re-iterate the concerns raised in the letter from Scottish Renewables to Marine Scotland dated 22 December 2022 with regards to the need for a robust strategic compensation framework, in particular:

   'As a result, the Offshore Enabling Group thinks the Compensation Framework is needed now, more than ever, to provide a clear basis for Scottish offshore wind developers to prepare HRA strategies, including without-prejudice Derogation Cases, with confidence and in line with the expectations of Marine Scotland and NatureScot'.

We will continue to engage with key stakeholders and take a pro-active approach to preparing compensation measures (without prejudice). We would however welcome the views of Marine Scotland and NatureScot on the matters outlined above.

Yours sincerely,
[Redacted]

Nicholas Ritchie
Development Director, Stromar

Appendix – List of projects and associated developers

Plan Option	Project Name	Project partners
North-East Region		
NE2	'NE2 project'	Thistle Wind Partners (DEME, Qair and Aspiravi)
NE3	Stromar	Ørsted, Renantis, Bluefloat
NE4	Caledonia	Ocean Winds, EDPr, Engie
NE6	Broadshore	Renantis, Bluefloat
NE7	Marram Wind	SPR, Shell Wind Energy Limited
East Region		
E1	Bellrock	Renantis, Bluefloat
	Ossian Wind Farm Limited	SSE Renewables, Marubeni and Copenhagen Infrastructure Partners
E2	Campion Wind	SPR, Shell Wind Energy Limited
	Muir Mhor Project Partners	Fred Olsen Seawind, Vattenfall
E3	'E3 project'	Thistle Wind Partners (DEME, Qair and Aspiravi)

Public Representation 1

[Redacted]

To: MS Marine Renewables
Subject: Berwick Bank Offshore Wind Development: objection
Date: 02 April 2023 15:13:12

I am writing to register an objection to the Berwick Bank offshore renewable development proposal submitted by SSE Renewables.[Redacted]
[Redacted]

The proposed development is in a location, and at a scale, which will adversely impact the integrity of several Special Protection Areas for seabirds along the East Coast of Scotland., particularly gannets on the Bass who travel on a daily basis through the summer through these waters for feeding. The developer should first and foremost take steps to reduce the impact of their development and yet there seems to be little evidence of steps being taken to achieve this. Instead, there is an over reliance on a sandeel fishery closure as a compensation measure but its benefits for some species is very uncertain.

The combined effect of the development proposal with other North Sea developments, is predicted to result in the SPA population for Northern gannets reducing by up to 20% over the life span of the development. The data and modelling in the environmental impact assessment also fails to consider the devastating impact that highly pathogenic avian influenza had on the Bass Rock Northern gannet colony.

Equally important but not mentioned so much, I am concerned about the impact of these turbines on birds migrating across the North Sea to overwinter in Scotland. For instance, woodcock fly in from as far away as Siberia and are already tired by the time they reach the wind turbines; they will not have the energy to travel around the site.

I believe that Scottish Ministers cannot approve the application:
• without contravening Regulation 48 (5) of the Conservation of (Natural Habitats, &c.) Regulations 1994 as the proposed development is at a scale that will adversely affect the integrity of several Special Protection Areas (SPAs); and
• under Regulation 49 (1-2) I believe that insufficient evidence has been presented to demonstrate that there are no alternative solutions to the plan or project and therefore the overriding public interest tests cannot be applied.

If consented, this development will constrain the Scottish Government's ability to fully realise the benefits from other ScotWind sites. Many of these are likely to be significantly less harmful to seabirds & other migrating birds and SPAs and it would be better to prioritise these.

Yours sincerely,

[Redacted]

Public Representation 2

From: Planning (NOT FOR PUBLIC ENQUIRIES)
To: Squires, Jean; Lees E (Emma); Bamlett R (Rebecca); Alexander A (Amy) (Marine)
Subject: FW: Comments for Planning Application 22/00005/SGC
Date: 16 May 2023 09:29:56

FYI

From: planning@eastlothian.gov.uk <planning@eastlothian.gov.uk>
Sent: 08 May 2023 20:38
To: Planning (NOT FOR PUBLIC ENQUIRIES) <planning@eastlothian.gov.uk>
Subject: Comments for Planning Application 22/00005/SGC

Comments summary

Dear Sir/Madam,

Planning Application comments have been made. A summary of the comments is provided below.

Comments were submitted at 08/05/2023 8:37 PM from [Redacted]

Application Summary

Address:	Berwick Bank Offshore Wind Farm
Proposal:	Section 36 application for the construction and operation of an offshore generating station (the Berwick Bank Wind Farm)
Case Officer:	Scottish Government

Click for further information

Customer Details

Name:	[Redacted]
Email:	[Redacted]
Address:	[Redacted]

Comments Details

Commenter Type:	Neighbour
Stance:	Customer objects to the Planning Application
Reasons for comment:	
Comments:	Representation Ref Offshore 2: Volume2, Chapter 11: Offshore & Intertidal Ornithology, Table 11.5: Table 11.5 is headed: "Summary of Site-Specific Survey Data." This data was sourced/compiled between April 2019 & June 2021. The present outbreak of the highly highly pathogenic avian influenza (HPAI, H5N1) was declared in or around October 2022. Due to the indicated 50% mortality rate, it is surely necessary to compile fresh data such that an accurate & meaningful assessment of the Wind Farm can be carried out. This same criticism can be applied to much of the survey data quoted in the Chapter 11. I object therefore to the granting of Planning Permission in Principle until such time as accurate data in the context of the Avian Flu outbreak, can be compiled.

Kind regards

Comments on SSE Environmetnal Impact Assessment Report (EIAR) & Planning Permission in Principle (PPP)					
Representation Ref	**Volume**	**Document Title**	**Chapter**	**Para/item ref**	Comment/Question
1	1	EIAR	n/a	n/a	It would be helpful if the header sections of each report contained reference to either Offshore or Onshore.
2	1	EIAR	1	2	The reference to a new substation by SPEN that forms the grid connection: Is this an additional substation
3	1	EIAR	1	17	In relation to the design decision of either HVAC substation or HVDC Converter station, as the visual as well as acoustic & overall environmetnal impacts of each option differ, the Community expect full consultation on the factorts influencing this decision. Therefore, a comprehensive list of the factors involved/taken into consideration in arriving at the chosen option should be made available to the Community. It is not unreasonable to expect the population most affected by this decision, being the Innerwick Community, to be allowed to make representations specifically about this choice.
4	1	EIAR	2	2.5 (para 60)	It is presumed that the reference to the elimination/scoping out of the requirement to assess visual impact beyond the 5km & 1km buffer zones means that there is consideration later in the EIAR to the visual & other environmetnal impacts (such as low level acoustic/ground borne vibration) within these
5	1 & 2	EIAR	4	4.6.1 (para 33)	The six initially chosen sites for substation locations are not shown in appendix 4.3 as listed here.
6	1	EIAR	4	4.6 (generally)	The assessment of each of the potential locations for 'the substation' does not appear to have considered the potential differing impacts assoicated with either HVAC substation or HVDC converter station?
7	2	EIAR	4	Figure 4.7	Whilst the cable route Option 1 is shown, there appears to be another route for which there is no legend
8	1	EIAR	4	Figure 4.7/para 68	Route 1a is not shown in Figure 4.7?
9	1	EIAR	4	Section 4.7 Para 71	There is reference to a commonality of cable routes across both this Berwick Bank Wind Farm (BBWF) proposal and the Eastern Link project, being led by SPEN. As a general comment & request for further clarity, it would be extremely helpful for community residents to have a composite set of drawings showing both the SPEN Eastern Link cable routes & the BBWF cable routes. A set of these could also be used to show which Developer/Project is active in a particular area during a calendar period & therefore allow the Community to see which area will be blighted, when & for how long. If neither of the
10	1	EIAR	4	Section 4.7 Para 75	As above, Cable Route 1A, which has apparently been selected as the preferred option is not shown as a legend on figure 4.7
11	1	EIAR	n/a	n/a	As a general comment, each of the documents viewed thus far have all been relatively short in length. This is helpful and for me is preferable to having a smaller number of massive documents.

12	1	EIAR	5	Figures 5.9a & 5.9b	Neither figure 5.9a or 5.9b are dimensioned. Please provide fully dimensioned plan layouts & section/elevations.
13	1	EIAR	5	5.3, para 14	How and when will the community be updated as to the extent of any micro-siting of infrastructure?
14	1	EIAR	5	5.3, para 26 & 53	Open cut trench crossing of local roads: Whilst I appreciate that formal road closure & traffic control measures must be applied for through the Road Authority - East Lothian Council, it would be helpful if the local community is kept informed as to the projected start & finish dates for each such closure. It is generally the case (& this is actively encouraged by certain road authorities) that during/as part of application for such road occupation, the period over which the works are expected to be completed is increased so as to allow for all & any eventualities which might extend the works. The periods stated in the road order information published by the road authority are therefore rarely accurtate & up to date. It has been suggested by myself to both SSE & SPEN in relation to each of the BBWF & Eastern Link projects repsectively, that it would be helpful if a regular forum for Community engagement & feedback during the Construction phase is set up. Where both projects are on site at the same time, this ought to be attended by both Developers. Updates on traffic management could be provided via such fora. Such a forum would allow questions & complaints to be dealt with quickly, provided the appropriate personnel from the Developers are allowed to attend. I would suggest that such a forum is not an adhoc event, but
15	1	EIAR	5	5.3, para 34	The substation plan area is quoted as 97,500m2. How does the plan area of the two options (HVAC or HVDC) compare? See also question re figures 5.9a & b
16	1	EIAR	5	5.3, para 42	It is unclear as to the location of the access points? Can better description be provided & perhaps have each access point given a unique reference so as to avoid miscommunication?
17	1	EIAR	5	5.3, para 43	It would be helpful to understand how the Developer proposes to enforce the authorised traffic routes &
18	1	EIAR	5	5.3, para 48-54	Construction activities during summer/dry periods: What are the proposed means of controlling the creation of dust during such dry periods?
19	1	EIAR	5	5.4.5, para 70	Again, how will dust be controlled during periods of dry weather within the Construction compounds?
20	1	EIAR	5	5.4.6, para 72	The cable chainages 1-3, 4 etc do not appear to be marked on either Figure 5.3 or 5.4? This section is therefore hard to follow. The reader is left guessing as to the identity of the access points.
21	1	EIAR	5	5.4.6, para 72	How does the developer intend to enforce compliance with the traffic protocols described in this section?
22	1	EIAR	5	5.4.7, para 77	**There is surely no justification for consent to 24hr working across the entire scheme. Any such consent must therefore be limited in any planning permission granted to the areas of trenchless construction & only during periods of actual tunneling/driving or as stipulated by Network Rail / Transport Scotland in**
23	1	EIAR	5	5.4.7, para 78	What are the planned working days - this section covers only the anticipated hours per day? Again, operations which require to be continuous such as tunneling/HDD and tidal works must be the only operations permitted to work seven days per week. All other non-critical activities must be five days per

24	1	EIAR	5	5.4.8, para 80, Table 5.2	For clarity, Year 1 on the outline programme is 2024?
25	1	EIAR	5	5.4.8, para 80, Table 5.2	**I refer again to my comment ref 9, on section 4.7, para 71. It would be helpful if perhaps ELC could take it upon themselves to have a composite outline programme for each of the Eastern Link & BBWF**
26	1	EIAR	5	5.4.9, para 88	I presume the reference here should be to ISO 14001:2015?
27	1/4	EIAR	12	12.3, para 7	Figure 2 of Appendix 12.1 is blurred and the legends cannot easily be made out.
28	4	EIAR	Appendix 12.1	Section 5.6	There have been a number of recent serious accidents on the A1 between Cockburnspath roundabout & Torness Power station. Can the data therefore be updated (current data set runs until 31st December 2020)? As this section of the A1 is a single carriageway, correct use of road junctions (by Construction site
29	4	EIAR	Appendix 12.1	Section 5.7	According to Chapter 5, construction is due to start in 2024? See Table 5.2. This section states work could start in 2025? Similarly, the projected construction period is stated at 40 months and if 2025 is indeed the construction start then completion will not be until the Spring of 2028. This is beyond the programme set out in Table 5.2 of Chapter 5, Volume 1. The phasing of the construction work, both within this project & equally importantly in conjunction with the other electrical infrastructure schemes projected to take place at the
30	4	EIAR	Appendix 12.1	Appendix B	I assume that the abreviation 'S/S' refers to substation?
31	4	EIAR	Appendix 12.1	Section 6.2	The first paragraph notes that the advise from East Lothian Council was that: "*no other developments or infrastructure schemes to be taken into account when considering potential cumulative traffic and transport impacts other than Neart na Gaoithe construction activities.*" The potential overlap with the Eastern Link project is then effectively written out of this Transport Assessment on the basis of alleged uncertainty. There surely is no uncertainty & therefore this Transport Assessment
32	4	EIAR	Appendix 12.1	Section 6.2	It would be helpful if clarity could be provided either by BBWF Ltd or East Lothian Council as to the identity of the party assigned to carry out the separate plan noted in the penultimate paragraph on page 19 wherein: *"It should be noted that any crossover of traffic with the Proposed Development's flows*
33	4	EIAR	Appendix 12.1	Section 7	It would be very useful to have these unclassified roads indicated on a drawing within this section of the report. The road reference numbers, for example U209 are not shown on Ordnance Survey maps.
34	4	EIAR	Appendix 12.1	Section 8.2	It would be useful & helpful to Community residents if there was some local involvement in the discussion forum desrcibed in paragraph 2. This would enable better dissemination of current traffic information & allow both parties (the project & the community) to plan, using up to date real time information as

35	4	EIAR	Appendix 12.1	Section 8.3	I presume that the reference to 'principal contractor' albeit in lower case, is per the Construction (Design & Management) Regulations 2015? This being the case, and given that there are a number of different disciplines involved (civil engineering & balance of plant as well as electrical engineering to name but two) what is the intention of BBWF Ltd as to how many 'Principal Contractors' will be appointed?
36	4	EIAR	Appendix 12.1	Section 8.3	As a follow on to the above question, enforcement of traffic routes, speed limits, appropriate traffic etiquette around horses etc is essential to reducing unnecessary stress & anxiety for residents. It cannot be overstated how important that it is for local community residents to see that these protocols are being followed & in the instance that there are transgressions, that swift & appropriate action is taken.
37	4	EIAR	Appendix 12.1	Section 9	The final sentence of the final paragraph notes*:"The effects of construction traffic are temporary in nature and are transitory."* Whilst they may be temporary, these transport related aspects of this huge project nonetheless have the potential to be devastating to the residents of this rural community. This glib & dismissive statement does little to engender good will towards thius project.
38	4	EIAR	Appendix 12.1	Appendix D: Construction Traffic Management plan	It would assist local community involvement & 'buy-in' if any planning condition discharge in relation to this CTMRP is contingent on local community sign off as well as East Lothian Council ditto.
39	4	EIAR	Appendix 12.1	Appendix D: Construction Traffic Management plan	Delivery of a site induction to delivery drives is, stating the obvious 'after the fact,' given that by this time the driver has, either by pure chance or proper planning, arrived on site. Proper communication of authorised traffic routes, local hazards & agreed protocols to the supply chain, some of whom may even be in a different country is an essential part of Suitable & Sufficent transport planning. What measures will be undertaken to address this aspect of site deliveries?
40	4	EIAR	Appendix 12.1	Appendix D: Construction Traffic Management plan	Section 96 agreement: Please clarify, Section 96 of what?
41	4	EIAR	Appendix 12.1	Appendix D: Construction Traffic Management plan	It would be helpful if a copy of the pre-construction road & assoicated infrastructure condition report is available publicly.

42	4	EIAR	Appendix 12.1	Appendix D: Construction Traffic Management plan	Provided that the Liaison Group described in this section comprises suitably local community members, meets sufficently frequently & is seen to be effective, then it ought to be a positive step.
43	1	EIAR	Chapter 12	Section 12.1 paragraph 2	As I have already reviewed Appendix 12.1 of Volume 4, I have only skimmed this Chapter. If this Chapter does anything more than: "*summarises information contained within Volume 4, Appendix 12.1: Transport Assessment and Volume 4, 12.2 Abnormal Load Route Assessment Report1 By Sweco*" then i would appreciate confirmation of this such that this chapter can be reviewed. Any comments on this chapter 12 cannot therefore be taken as evidence that i have no other comments on this chapter 12, should the
44	1	EIAR	Chapter 12	Section 12.12 paragraph 123	This statement runs contrary to the statement made in section 6.2 of Appendix 12.1 of Volume 4, please clarify?
45	1	EIAR	Chapter 12	Section 12.12 paragraphs 127 & 131	These two paragraphs appear to contradict one another: Para 127 notes (in relation to the construction of BBWF & the Eastern Link (and associated converter station, sub-station etc) that: "*and if consent is granted, it is anticipated that the projects will be constructed concurrently with the Proposed Development."* Para 131 however notes: *"Furthermore, it is not predicted that the potential traffic flow increases could reasonably occur on the study area for the following reasons: It is extremely unlikely that the peak traffic conditions would occur at the same time due to differences in construction programmes, material supplies and developer resources;"* Furthermore, whilst the latter goes onto to note that Abnormal load deliveries are self restricting/limiting (in their impact) doe to the limited number of permits for such movements

46	1	EIAR	Chapter 9	General & para 166	1. The assessment of noise & vibration appears to assess the likely impact of construction works on & within construction sites only. During the Construction phase, noise & vibration emanating from construction traffic on narrow and poorly maintained local roads is likely to be a significant issue facing local residents, especially given the age & foundation type plus soil type underlying such foundations of many of the properties in the Innerwick area. A number of properties especially in Crowhill, but also in the village of Innerwick itself are either very close to or actually abut directly onto, the adjacent narrow & poorly maintained local roads. This proximity, as pointed out in a number of the publications referenced in Chapter 9, will magnify the ground borne vibration effects of construction site traffic. 2. Equally, there does not appear to be any assessment of noise & or vibration of any HVAC substation or HVDC Converter station in operation. HVDC Converter stations can emit vibrations dependent on various factors associated with the way in which the fluctuating voltage inputs & outputs are balanced during operation. This conclusion is borne out by the selection of the primary British Standard to which reference is made some 71 times throughout this chapter 9, this being British Standard 5228: 2009 Parts 1 & 2 which concern *"Code of practice for noise and vibration control on construction and open sites."* 3. There are no details given of any planned vibration monitoring by instruments such as seismographs or vibrographs. These instruments are easily & readily obtainable from comapnies such as Vibrock Ltd. Table 9.49 actually states against proposed vibration monitoring at sensitive receptors *"none."* I would request that such vibration monitoring (during the Construction phase initially but also post construction during the operation of either substation or HVDC Converter station) is included as a planning condition. Whilst there is a commitment at paragraph 166 to carry out a detailed noise assessment of the substation (in operation) at paragraph 166 before Commissioning of said facility, with the greatest of respect,
47	1	EIAR	Chapter 9	Paras 66/67	Paragraph 66 refers to *"Paragraph 3.32 of DMRB LA 111 (Highways England, 2020)."* A review of Revision 2 of the document referenced did not show such text as is stated in paragraph 67. However, paragraph 4.1.1 of said document does recommend: *"Monitoring of likely significant effects should include one or more of the following* : *1) verification that specific noise and vibration mitigation measures are in place for activities where there is potential for likely significant effects to occur in their absence;* 2) *measurement of noise and/or vibration;* *3) checking that noise and vibration management procedures and practices are sufficient to ensure that adverse effects are no worse than set out in the assessment report."* The conclusion reached at paragraph 68 is therefore challenged for the reasons set out in representations

48	1	EIAR	Chapter 9	Para 75	The actual text from BS 5228 is re-produced here: *"Minor damage is possible at vibration magnitudes which are greater than twice those given in Table B.2, and major damage to a building* *structure can occur at values greater than four times the tabulated values."* The references to 'Minor' & 'Major' damage appears to have been edited out.
49	1	EIAR	Chapter 9	Para 101	The assessment of sound power level using the dB(A) scale is a logarithmic scale. The increase in sound power level using the dB(A) scale of 1dB(A) represents an effective doubling of sound power level. For this rerason, the statement made in paragraph 101 may be made without important context. Section 11 of the BS 4142 referred to in this Chapter 9 states that: *"The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs. An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context."* I would question therefore the statement mader in paragraph 101 & request that this statement is explained, providing all context as referred to in BS4142.
50	1	EIAR	Chapter 9	Para 105	As noted above, the text included at paragraph 105 confirms that no assessment has been made of the in-service noise output of any substation & or HVDC Converter station. Wuithout this information, the permanent impact on local residents cannot be assessed. This in-service noise & vibration assessment is surely an essential component of any planning permission in principle decision/submission.

51	1	EIAR	Chapter 9	Para 122 - 128	Given the evidence quoted within the various reference documents to this section in relation the relatively rapid dissipation of construction plant induced ground borne vibration, I would question the conclusion that the various trenchless techniques considered are or are likely to create the greatest vibration at vibration sensitive receptors (VSRs). Rather than speculate as to the various types of construction plant that may be involved, i would simply request that a planning condition is inserted in relation to ground borne vibration. This planning condition would require that once construction contracts have been let, the developer submits to the Planning Officer a planned vibration monitoring regime for certain operations. These operations might include (but not be limited to as additional operations ought to be permissable at the Planning Officer's discretion): 1. Delivery of bulk quarried materials - both coated & uncoated. 2. Haulage of excavated materials off site or to other site locations within the red line planning boundary. 3. Earthworks - including top soil strip & excavation/filling operations. 4. Piling - whether permanent or temporary works piling of any type.
52	1	EIAR	Chapter 9	Table 9.48	Based on the planning application status to date, the Eastern Link project is now certain (assuming planning permission is granted for BBWF Ltd in line with their current proposed timescale outlined in table 5.2) to overlap with BBWF. Therefore, if this premise is accepted, then the Combined Effects
53	1	EIAR	Chapter 9	Para 193	The conclusion in paragraph 193 that *"Overall, it is concluded that there will be no likely significant cumulative effects from the Proposed Development alongside other projects/plans"* is challenged, on the basis that only fleeting consideration of the cumulative effects of Eastern Link, BBWF & also the proposed Battery Storage Plant at Branxton (ECU Ref ECU00004659) has been apparently given in the preparation of this Chapter 9. Given that both geographically & temporally Eastern Link & BBWF will overlap significantly & for extensive periods, i feel that an independent assessment of the combined effect of the construction phases of these two projects, potentially with the addition of the Branxton Basttery Storage facility once timescale becomes more certain for the latter, is entirely justified. To provide some context,
54	1	EIAR	Chapter 9	Table 9.49	In relation to the Construction Environmental Management Plan (CEMP), it is suggested that more effort is applied to proposed mitigation measures than has been thus far detailed. For example, whilst it is accepted that certain trenchless operations need to be continuous during certain critical phases, reversng bleepers & noisy operations such as loading wagons/dump trucks create particular nuisance at night. The use of white noise reversing bleepers can reduce such impact significantly. It is therefore requested that it should be made a condition of approval that a separate Section 61 (Control of Pollution Act 1974)

55	1	EIAR	Chapter 5	Figure 5.1	The 'red line boundary' shown on Figure 5.1 covers a large area East of the location of the proposed grid connection substation at Branxton. There do not appear to be any planned construction site operations in this area & so some justification of the need for this area to be included with the red line boundary is requested. A marked up Figure 5.1 is included along with this schedule of representations to illustrate the
56	1	EIAR	Chapter 5	Generally	Property Condition surveys: Construction site traffic, both for this BBWF development & Eastern Link will increase significantly, as is detailed in Chapter 12. In certain areas, such as (but not limited to) Crowhill, there are a number of properties which are either very close to or actually abut the local roads. Are there any plans to carry out property condition surveys (at the developer's expense) prior to works

Public Representation 3

From: Squires, Jean
To: MS Marine Renewables
Cc: Cumming, Catherine (Biodiversity Officer)
Subject: Berwick Bank Windfarm - not for publication - forwarding comments for Planning Application 22/00005/SGC
Date: 05 May 2023 22:27:45

Dear Marine Scotland,
We have published the details of the application for the wind farm at Berwick Bank, as we are required to do by legislation, with the reference number 22/00005/SGC.
We have received the representation below from a member of the public. I have redacted his name as I have not been able to check with our Data Protection Officer that I am able to include this information.
Regards,
Jean

J Squires
Planner, Policy and Projects
Work pattern: Monday - Friday but not Friday p.m.

Email and skype: jsquires@eastlothian.gov.uk
Write or visit: Planning Service, East Lothian Council, John Muir House, Haddington, EH41 3HA
Phone (direct line): 01620 827370
Phone (switchboard): 01620 827827
Website: www.eastlothian.gov.uk/localplan

From: planning@eastlothian.gov.uk <planning@eastlothian.gov.uk>
Sent: 05 May 2023 09:36
To: Planning (NOT FOR PUBLIC ENQUIRIES) <planning@eastlothian.gov.uk>
Subject: Comments for Planning Application 22/00005/SGC

Comments summary

Dear Sir/Madam,

Planning Application comments have been made. A summary of the comments is provided below.

Comments were submitted at 05/05/2023 9:36 AM from [Redacted]

Application Summary

Address:	Berwick Bank Offshore Wind Farm
Proposal:	Section 36 application for the construction and operation of an offshore generating station (the Berwick Bank Wind Farm)
Case Officer:	Scottish Government

Click for further information

Customer Details

Name:	Mr [redacted]
Email:	[redacted]
Address:	[redacted] resident of Innerwick Dunbar, East Lothian EH42 1QT

Comments Details

Commenter Type:	Member of Public
Stance:	Customer objects to the Planning Application
Reasons for comment:	
Comments:	In Chapter 11 of Volume 2 of the EIAR for the offshore application (in relation to the impact of the offshore element on Ornithology) there is no reference at all to the present outbreak of Avian Flu. I object to the application on the basis that there must be an assessment of the impact of the wind farm on the bird population in the Forth Estuary area which is based on the bird population in its current state ie: already heavily impacted by the outbreak of Avian Flu. It will be too late in ten years time to realise that going ahead

with such a massive offshore construction at a point in time where the bird population was already in a parlous state (as a result of the Avian Flu outbreak) was a serious mistake.

Kind regards

NHS Coronavirus Information

Public Representation 4

23/00162/PPM | Planning permission in principle for electricity transmission infrastructure (substation or converter station) and associated development including buried cabling | Land Between Skateraw And Branxton East Lothian

I broadly support the scope and strategic intent of this proposal, but have concerns about the cumulative impacts of competing developments in the area. Also given the monumental scale of this and similar proposals off and onshore, and the disproportionate local impacts felt mainly by local and nearby residents, I qualify that support.

Permission must be subject to stringent conditions, over and above those that might normally might apply and explicit consideration must be given to the cumulative impacts on the environment.

Given the scale of the potential revenue stream (and likely profits that relatively few companies will accrue) and the very long life of the whole development, I recommend that a significant compensatory project and at a very large scale will need to be implemented, the broad contours are described in a bit more detail below.

On the land side, where most practical compensatory measures are feasible, this would see the highly depleted "natural capital" south of Dunbar and west towards the Borders begin to be substantially enhanced, restored or reinstated. Natural capital being the sum of natural heritage assets ie landscapes, habitats and wildlife and fully functioning hydro- ecological systems.

Any community benefit must go well beyond the historical levels of support which have assisted - to an extent - the rebuilding of some neglected community assets. Helping the fuel poor should really should be entirely separated under separate obligations.

Community benefit should be reimagined and provide intergenerational benefits too, by way of repair and restorations for past mistakes (albeit made in good faith, under different planning assumptions and different expectations and knowledge); mistakes which have diminished the inherent qualities of the local landscape,

reduced the ecological interest or constrained it to the most marginal areas and narrowest strips of land; which are very often the only areas that are also accessible to the public and therefore bringing public recreation into conflict with conservation interests.

Future applications for energy development in the locality, either of similar scale or of similar local impact should contribute to such a fund / initiative; the combined effect to amplify strategic policy objectives and create local funding synergies on an unprecedented scale.

This would help cement a durable environmental partnership that will be necessary to steer through to a successful conclusion an important and ambitious initiative/masterplan, that should be enabled under the next Local Development Plan.

Project: Restoration of the Natural Capital and Landscapebetween Character Broxmouth, Dunglass and Crystalrig

1. A **major restoration and off-site mitigation plan** should be proposed by the developer along with a **substantial multiannual funding contribution** to support and undertake landscape scale environmental restoration and improvements in the area between Dunglass to Broxmouth and inland to Innerwick and Oldhamstocks and the upland beyond (to take in the areas of energy infrastructure - currently comprising Aikengall and Crystalrig).

The plan should go well beyond the build phase. The plan should go well beyond the **limited on-site mitigation measures as currently proposed** and leave a substantial legacy of off-site improvements that contributes to reversing a century or so of ecological deterioration.

Much of this deterioration is due to permitted activities - e.g. xtractive mining operations, energy infrastructure, permitted under different assumptions, but also recent road building; and not least a shift to mostly unsustainable extractive agricultural practices (ie contract farming).

An **environmental fund should be created** to support ongoing management works and independently managed and controlled locally. A detailed plan outline should be submitted before work commences.

2. The **coastal strip needs a much wider and better environmental protection** using a variety of tools, e.g. buffer zones and a combination of habitat re-creation and managed retreat as appropriate, in order to help restore a more natural ecosystem functioning and encourage ecological processes while pushing back the farming boundary, starting with ground that is marginal agronomically. In time it may even be argued that a review of the extent of mining is needed given the CO2 emissions, which would improve prospects for a wider restoration.

e.g. at Skateraw and the area of SSSI either side of the Dryburn there are marginal fields and grassland which could be restored to nature and strengthen the coastal zone ecosystem. **Regenerative agricultural practices** should be encouraged all along the coastal buffer and also around all the local burns and significant drainage systems.

Lessons should be learnt from the partial attempts at ecological restoration at Oxwellmains. These areas remain - many years after the end of mining, ecologically depleted (the woodlands have little undertory vegetation, the water body is still not vegetated and the rank grassland supports limited plant diversity). This restoration has failed to improve the landscape - the big hole looks like a big hole in the ground with water, regardless of the conservation management prescription.

3. Signed paths should be part of a masterplan to help keep human disturbance away from sensitive dune, grassland habitats and woodlands and anywhere where avifauna uses field margins, but allow locals and visitors to enjoy a healthier and less polluted environment (currently residents can enjoy anything from cement

dusts, light plastic wastes and a cocktail of sulphurous discharges and particulate matter).

New paths should be created to allow people to avoid the waste plumes, e.g. along the coastal ridge which could minimise disturbance to sheep and wildlife by humans and dogs in the SSSI (and to provide improved views to sea) or on the West side.

4. The **coastal zone needs renewed ecological and hydrological linkages to the countryside and hills** beyond, starting with the highly degraded riverine valleys (most are designated as Wildlife Sites and would be available for woodland grants for broadleaved plantings to assist); restoring or ecologically enhancing woodland habitats should emulate the diversity of the semi natural steep sided deans present in small areas in and around the locality; interspersing these with more open meadow glades and small floodplain wetlands.

Most extant woodlands, semi natural or planted, have **not** been managed at all well over the last half century or more. The river valleys should also be suitably buffered in all directions up to their headwaters, to minimise problems of run off and eutrophication and sedimentation associated with intensive farming.

In most cases the agricultural value of the steeper sloped land is low, especially in the headwaters and the insensitive development contributes little to landscape habitat diversity or quality, rather it creates often very visible scarring and results in progressive soil erosion and sedimentation. Everything from insensitive track creation and poor land management practices, like pheasant rearing on the one hand and burning on the other should be included in management prescriptions to support a healthier functioning landscape.

The Dryburn would be an ideal candidate for targeting early restoration or rewilding efforts esp. in its lower reaches and then beyond.

The fields where the cables are to be undergrounded at Skateraw could also be reconfigured, to create a more distinctive and diverse coastal grassland; and perhaps the concrete sea protection removed once the installation works are complete. This could provide highly

visible evidence and demonstration of good restoration practices and managed retreat, and new well signposted local path configurations.

5. Wherever possible, these **offsite restored areas** should be made sufficiently accessible to local people (incl. from Cockburnspath to Dunbar), esp. those who want to visit without a car or don't have access to motorised transport. The aim would be to strengthen the existing path networks and build up a coherent web of legible public paths (usable all year round), which would also better link the villages and the those typically more isolated steadings and old agricultural cottages, to create safe off road walking routes, suitable for leisure and utility journeys.

Although much of the road network could qualify as quiet, the road geometry and widening more often than not doesn't lend itself to shared use, without some serious interventions to slow down industrial and farm traffic. Even though vehicle speeds may not be as high as people think, local people clearly do not feel safe with large vehicles in their proximity.

6. At a **landscape scale the restoration of long, medium and short distance views** should be addressed to enhance everyone's experience of the locality (which is inherently rich in geo diversity and historic heritage and even improve the appearance of the industrial heritage - this should include lighting at night, which is currently excessive).

Efforts can be concentrated around path networks and field margins, but elsewhere around the older and well-established infrastructure. The landscape features have been fragmented, scarred and severely diminished by decades of unsympathetic industrial development and incomplete measures. For the large part attempts at mitigation have not stood the test of time - were either poorly designed or tended to decline through neglect, lack of any aftercare (lacking either a plan or sufficient resources.)

Further landscape linkages with ecological benefits should be proposed to restore e.g. field structures, like wide hedges and walls, specimen trees, copses and woodland shelter belts; too many now are

eroded by years of neglect and worsened by storm damage. A good starting point for the landscape measures would be the landscape assessments carried out for the Local Development Plan (2018), which has prescriptions. This e.g. cites man made features, such as 18 and 19C farm walls and field features, many of which are falling into disrepair, but characterise and mark the distinctive rolling landscape. This can be built on with a wider suite of management prescriptions designed specifically for this area.

7. Meaningful public access is required too. Roads and industry present significant barriers to safe and easy access to the coast. Many paths are poor quality, some eroding, many poorly maintained or constrained by limited routing choices.

The visual outlook from these routes is almost always industrial and is unappealing. Farming then pushes the ecological envelope to its extreme. After the machines have left, the farming boundary is pushed back further, or overburden or stones piled randomly - a major missed opportunity to improve the people's experience.

In this regard the A1 requires a number of safe crossing points - for walkers and cyclists. Safe crossings should be located at intervals near the Innerwick, Thorntonloch and Oldhamstocks and Dunglass/Bilsdean turn offs.

In conclusion a major regeneration project would have huge symbolic importance and allow more people to enjoy the local heritage natural and built, safely, without having to rely exclusively on motorised transport and sheltered from the omnipresent shadow of industries of the past. There should be tangible benefits for all local people's health and wellbeing from such a scheme.

RSPB Scotland

Marine Scotland Licensing Operations Team

Marine Scotland

By email: MS.MarineRenewables@gov.scot

31st March 2023

Dear Emma,

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 (AS AMENDED), MARINE LICENCES UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE BERWICK BANK OFFSHORE WINDFARM, OFF THE COAST OF EAST LOTHIAN AND THE SCOTTISH BORDERS

Thank you for consulting RSPB Scotland on the above application to construct and operate an offshore windfarm off the East Lothian and Scottish Borders coastline. We wish to make you aware that we have engaged with the Applicant, SSE Renewables, during the pre-application stage and attended meetings alongside Marine Scotland and NatureScot to provide further advice on methods of data analysis and the parameters to be used and we are grateful to the Applicant for this helpful engagement. We also recognise they have undertaken a large amount of data collection and analysis. We wish to express our thanks to the Applicant for the volume of work they have undertaken.

RSPB Scotland recognise that climate change is the greatest threat to nature, and we support the transition to renewable energy. We consider that offshore wind has a part to play in a just transition from Scotland's dependence on fossil fuels. We support the principle of offshore wind development and agree that renewable electricity generation offshore has strong policy support. We do not however believe this is the right location for a windfarm and we **object to the Application .**

It must be recognised by MS-LOT in their recommendation to Ministers that models are simplified versions of reality. They do not fully capture the nuances of our dynamic natural environment, the complex behaviours of seabirds or the interlinkages between the two. They are not complete evaluations of the possible risks a windfarm poses to seabirds. This fact, combined with the sensitivity of seabird populations to small changes in adult mortality, and the requirements of the Habitats Regulations, emphasises the requirements to take a precautionary approach when assessing impacts of the proposed development.

The proposed development overlaps with the Outer Firth of Forth and St Andrew's Bay complex Special Protected Area (SPA). This is one of the most diverse marine bird concentrations in Scotland and, during the breeding season provides feeding grounds for a large assemblage of over 100,000 seabirds. There are also numerous other seabird colonies in the vicinity, many of which are also designated Special Protected Areas (SPA). That is, they are specifically identified and protected due to supporting one or more rare, threatened,

RSPB Scotland Headquarters
2 Lochside View
Edinburgh Park
Edinburgh
EH12 9DH

Tel: 0131 317 4100
Facebook: @RSPBScotland
Twitter: @RSPBScotland
rspb.org.uk

or vulnerable bird species as listed in Annex I of the Birds Directive, or regularly occurring migratory species, and there is legal obligation under the Habitats Regulations to secure steps to avoid disturbance to and deterioration of the sites. In addition, the development array area overlaps with the Forth Banks MPA complex, an identified area of critical sandeel habitat and important to foraging seabirds.

Seabirds are relatively long-lived, tend to breed later and have fewer young than other birds and as a result, their populations are sensitive to small increases in adult mortality. Their survival and productivity rates can be impacted by offshore windfarms directly (i.e. collision) and indirectly (e.g. displacement from foraging areas, additional energy expenditure). They are also already under severe pressure. In 2019 they were assessed as moving away from target to achieve Good Environmental Status[1] and in Scotland, the number of breeding seabirds has declined by 49% since the 1980s, according to the Scottish biodiversity indicator[2]. Kittiwake, Gannet and Puffin are red listed in the Birds of Conservation Concern while Razorbill and Guillemot are Amber listed.

The impacts of the project are large and significant. Modelling predicts that, for the application alone, at the end of the 35-year lifetime of the development, puffin, guillemot, razorbill and gannet populations at the Forth Islands SPA, Fowlsheugh SPA and St Abbs to Fast Castle SPA will have all seen declines compared to in the absence of the development. For kittiwakes at St Abbs, the size of the SPA population is expected to be between 37.5 and 43.8% of what it would have been in the absence of the development. These impacts do not account for secondary impacts from building on sandeel habitat and are additional to existing population declines and events such as HPAI. In combination with other development in the North Sea, the predicted impacts are of a further order of magnitude and a greater spatial extent. Without exception, the impacts would add pressure to species already struggling and, in the case of Kittiwake and Puffin, already vulnerable to global extinction.

RSPB Scotland welcome the Applicant's recognition of there being Adverse Effects on Site Integrity (AEoSI). Mindful of the state of Scottish seabirds and following analysis of impacts, we consider potential for AEoSI cannot be excluded for Kittiwake, gannet, razorbill, guillemot and puffin at four SPAs. In combination with other North Sea windfarms, potential for AEoSI cannot be excluded for twelve SPAs.

An AEoSI means potential effects from the development that are also likely to prevent the achievement of the conservation objectives and cannot be mitigated. Under the Habitats Regulations, a project that would result in AEoSI on European protected sites cannot be permitted unless it can be demonstrated there are no lesser damaging alternative solutions, there are imperative reasons of overriding public interest (IROPI) for the project to go ahead, and compensation to maintain the coherence of the UK/National Sites Network can be secured. European sites are the most important sites for wildlife and as such it is right that maintaining them in favourable conservation status and protecting them from development carries a high weight in decision making.

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[1] The Marine Strategy Regulations 2010 (legislation.gov.uk)
[2] Scottish Biodiversity Indicator – The Numbers and Breeding Success of Seabirds (1986 to 2019)

RSPB Scotland Headquarters
2 Lochside View
Edinburgh Park
Edinburgh
EH12 9DH

Tel: 0131 317 4100
Facebook: @RSPBScotland
Twitter: @RSPBScotland
rspb.org.uk

Following a review of the Applicant's derogation case, RSPB Scotland recommend Scottish Ministers consider the alternative solutions against the following objective:

> *To aid Scotland in achieving its greenhouse gas reduction and climate change targets in accordance with the Government published strategies through the development of commercial scale offshore wind.*

We do not consider the **search for alternative solutions performed by the applicant is adequate**. It has dismissed Scotwind sites without proper assessment of whether they would meet the same objective as the proposed development and be less harmful. We request Scottish Ministers seek NatureScot's advice as to whether, with the information currently available, it is possible to conclude that development of one or more Scotwind sites would meet the objective as outlined above and result in less potential for harm to protected sites and their species than this Application.

Notwithstanding the above, **RSPB Scotland does not believe that the proposed compensation measures constitute compensation**. There are evidence gaps around the colony compensation measures in terms of the species targeted, the feasibility of their implementation and effectiveness. They are of insufficient scale to compensate for the magnitude of predicted impact. The fisheries compensations are also problematic. Although RSPB Scotland strongly support the closure of the UK EEZ industrial sandeel fishery and view it as a vital measure to build resilience in seabird populations in the face of mounting pressure from food web disruption, offshore renewable energy development and highly pathogenic avian influenza (HPAI), we do not consider it a mechanism to compensate for an additional pressure. Furthermore, Scottish Government has already committed to the closure of the industrial sandeel fishery in Scottish waters to help meet the obligations of Good Environmental Status for our seas under the Marine Strategy Regulations 2020[3] and to accord with the Scotland's Fisheries Management Strategy[4].

RSPB Scotland also wish to highlight that the proposed development is hindered to some extent by the poor placement of other offshore wind farms in the Forth and Tay region. Scottish Ministers previously concluded the cumulative impacts of those wind farms on seabirds were just within the limits of environmental acceptability - a position we continue to passionately disagree with. The marine environment has not improved, and this application is adding further pressure to the same colonies.

MS-LOT and Scottish Ministers should further bear in mind the future cumulative impacts of the proposed development in combination with those already permitted in the context of delivering future offshore wind development. The Plan Options identified within the Sectoral Marine Plan for Offshore Wind Energy are, in essence, a spatial strategy for further energy development in Scottish Waters. RSPB Scotland request that the question of whether the proposed development would undermine this spatial strategy for offshore wind is specifically addressed as part of the recommendation to Ministers.

[3] The Marine Strategy Regulations 2010 (legislation.gov.uk)
[4] Scotland's Fisheries Management Strategy 2020-2030

RSPB Scotland Headquarters
2 Lochside View
Edinburgh Park
Edinburgh
EH12 9DH

Tel: 0131 317 4100
Facebook: @RSPBScotland
Twitter: @RSPBScotland
rspb.org.uk

Overall, the site is inappropriate for the type of development proposed and, consequentially, an offshore windfarm in this location would cause serious and irreparable harm to biodiversity. The application does not constitute sustainable development and so is contrary to the National Marine Plan, the foundation upon which decisions for development in the marine environment should be made. It is also our view that the requirements of the Habitats Regulations have also not been met.

RSPB Scotland have sympathy with the applicant's position. We recognise they hold a lease for the development of this site and that the Firth of Forth Zone was selected by The Crown Estate in 2009. At that point in time, knowledge of marine processes and the impact of offshore wind was less well known and prediction techniques in their infancy. In the intervening 14 years, more information has become available, and awareness of offshore wind impacts have increased. With the information currently available, the site should have not been made available for offshore wind.

Finally, RSPB Scotland wish to emphasise that sediments and other environmental aspects that make an area of sea a good nursery and spawning area for fish and foraging area for seabirds cannot be relocated. It is also not possible to relocate seabird breeding colonies. It is however possible to put an offshore windfarm development in a different location and there are alternative sites available where the same objective of this application would be met.

Our detailed comments including a review of the methods used and analysis of the approach to derogation is enclosed. Should you require any further information or clarification, please do not hesitate to get in contact.

Yours sincerely,

[Redacted]

Senior Marine Conservation Planner
RSPB Scotland

RSPB Scotland Headquarters
2 Lochside View
Edinburgh Park
Edinburgh
EH12 9DH

Tel: 0131 317 4100
Facebook: @RSPBScotland
Twitter: @RSPBScotland
rspb.org.uk

Berwick Bank Offshore Wind Farm Application
Response by the Royal Society for the Protection of Birds

1. Legislative and policy background

Introduction

1.1. In accordance with the requirements of the Marine (Scotland) Act 2010 when considering a application and making a recommendation to Ministers, MS-LOT must consider the extent to which the proposed activity accords with any marine plan for an area and the impact that it would have on the environment, human health, and other legitimate users of the sea as well as other matters considered relevant.

Policy position

1.2. Scotland's National Marine Plan[1] (NMP) (adopted 2015) sets out the strategic policies for sustainable development in both the Scotland inshore region (0 to 12 nautical miles) and within the Scottish Offshore region (12 to 200 nautical miles).

1.3. A core aim of marine planning, as set out by the NMP, is to manage human impact on the marine environment. The plan therefore seeks to put the marine environment at the heart of the planning process and adopt the principles of sustainable development. The environmental, social, and economic policies of the plan are intended to be complementary with one another as elements of sustainability.

1.4. Through policy GEN 9 (Natural Heritage), the NMP requires that development and use of the marine environment complies with legal requirements for protected areas and protected species, not result in significant impact on the national status of priority marine features and protect, and where appropriate, enhances the health of the marine area. It also encourages a strategic approach to mitigation of potential and cumulative impacts, stating these forms an integral part of marine planning and decision making.

1.5. Renewables specific policies within the NMP direct commercial scale development to the plan options areas (as identified in the Sectoral Marine Plan) and require applications to demonstrate compliance with the Environmental Impact Assessment (EIA) and Habitat Regulations Appraisal (HRA) legislative requirements.

1.6. Since the adoption of the NMP, Scottish Government have further recognised that net zero and energy goals will have impacts on the environment, specifically marine biodiversity, as well as other users of sea. In particular, the draft Energy Strategy and Just Transition Plan (2023)[2], recognises the potential impacts on biodiversity arising from the major expansion in offshore wind. It contains a committed to work in a way that recognises this reality and ensures appropriate protection of the natural environment as part of a joined-up approach to tacking the climate and nature crisis.

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1 National Marine Plan
2 Draft Energy Strategy and Just Transition Plan (www.gov.scot)

1.7. This follows the approach of the National Planning Framework 4 which, in policy 1 clearly sets the expectation that significant weight will be given to the global climate and nature crises when considering all development proposals. Although this document is not directly applicable to marine development, it is applicable to onshore elements and RSPB Scotland believe it is a relevant consideration, albeit one with limited weight, for development offshore.

The Habitats Regulations

1.8. The European Union (EU) Habitats[3] and Wild Birds[4] Directives (commonly referred to as the EU Nature Directives) seek to conserve particular natural habitats and species across the EU. The overall aim of these Directives is to ensure the long-term survival of viable populations of Europe's most valuable and threatened species and habitats, throughout their natural range and to maintain and promote biodiversity.

1.9. These Directives have been transposed into UK legislation and, relevant to this application are:

1.9.1. *The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) ("the 1994 Regulation")*- applies on land in Scotland, and in Scottish inshore waters (the area of sea adjacent to Scotland from 0 to 12 nautical miles);

1.9.2. *The Conservation of Habitats and Species Regulations 2017* -applies to specific reserved and devolved activities on land in Scotland, and in Scottish inshore waters, including for consents under sections 36 and 37 of the Electricity Act 1989; and

1.9.3. *The Conservation of Offshore Marine Habitats and Species Regulations 2017* -applies to all UK offshore waters (the area of sea beyond 12 nautical miles).

1.10. These are referred to as "the Habitats Regulations" in this submission.

1.11. In Scotland, 162 Special Protection Areas (SPAs) have been classified. These have been specifically identified and protected due to supporting one or more rare, threatened, or vulnerable bird species as listed in Annex I of the Birds Directive, or regularly occurring migratory species.

1.12. Although the UK has withdrawn from the EU, the legislation transposing the Habitats and Birds Directives remains in place[5]. SPAs are protected in Scotland and the rest of the UK, and the standard of protection and requirements has not changed.

1.13. There have however been some changes to terminology and process due to Brexit. Of relevance to this submission is that the EU-wide network of SPAs and SACs known as "Nature 2000" Network post Brexit, no longer is of legal relevance. However, the UK-wide network of protected sites is and is referred to as the "UK site network" [6]. In addition references in the Habitats Regulations to the

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3 EU Council Directive 92/43/EEC
4 EU Council Directive 2009/147/EC
5 And are part of the UK compliance with International Environmental Conventions
6 The Network has two names in the UK wide Offshore Hab Regs it is referred to as the National Sites Network but in the Scottish terrestrial Hab Regs it is more called the UK Sites Network

"coherence of Natura 2000" must now be read as references to the coherence of the UK/National site network[7].

1.14. The Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017.

1.15. The Habitats Regulations set out the sequence of steps to be taken by the competent authority (here the Scottish Ministers) when considering authorisation for a project that may have an impact on a European site and its species before deciding to authorise that project. These are as follows:

1.15.1. Step 1: consider whether the project is directly connected with or necessary to the management of the SPA and its species (regulation 63 (1)). If not –

1.15.2. Step 2: consider, on a precautionary basis, whether the project is likely to have a significant effect on the SPA and its species, either alone or in combination with other plans or projects (the Likely Significance Test) (regulation 63 (1)).

1.15.3. Step 3: make an appropriate assessment of the implications for the SPA and its species in view of its conservation objectives. There is no requirement or ability at this stage to consider extraneous (non-conservation e.g. economics, renewable targets, public safety etc) matters in the appropriate assessment (regulation 63 (1)).

1.15.4. Step 4: consider whether it can be ascertained that the project will not, alone or in combination with other plans or projects, adversely affect the integrity of the SPA and its species, having regard to the manner in which it is proposed to be carried out, and any conditions or restrictions subject to which that authorisation might be given (the Integrity Test) (regulation 63 (6)).

1.15.5. Step 5: In light of the conclusions of the assessment, the competent authority shall agree to the project only after having ascertained that it will not adversely affect the integrity of the SPA, alone or in combination with other plans or projects (regulation 63 (5)).

1.15.6. Step 6: only if the competent authority is satisfied that, there being no alternative solutions and the plan or project must be carried out for imperative reasons of overriding public interest (which, subject to (regulation 64(2)), may be of a social or economic nature), they may agree to the plan or project notwithstanding a negative assessment of the implications for the European site (regulation 64 (1)).

1.15.7. Step 7: in the event of the no alternative solutions and imperative reasons of overriding public interest tests being satisfied, the Scottish Ministers must secure that any necessary compensatory measures are taken to ensure that the overall coherence of the Natura 2000 network is protected (regulation 68).

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[7] Please know this legislative changes has been done by way of a clarification within regulation 2(3), interpretation as follows "(3) **For the purposes of these Regulations, and any guidance issued…references to *"Natura 2000"* …are to be construed as references to the national site network**." which makes clear that although terrestrial Has Regs, reg 69 and the Offshore Regs, reg 36(2) still refer to *(2) The appropriate authority must secure that any necessary compensatory measures are taken to ensure that the overall coherence of Natura 2000 is protected*. That is to be "interpreted" as a reference to UK/National Site Network

1.16. It is important to add that in addition to the requirements set out above, in relation to both inshore area and the offshore marine area, any competent authority must exercise its functions so as to secure compliance with the requirements of the Habitats Directive and the Birds Directive; and in particular to take such steps as it considers appropriate to secure the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds[8], having regard to the requirements of Article 2 of the Birds Directive.[9] And for offshore SPAs regulation 26, Offshore Regulations requires competent authorities to exercise their functions (as far as possible) to secure steps to avoid the disturbance of species and the deterioration of habitats or habitats of species within those sites.

Appropriate assessment

1.17. As part of the assessment requirements, regulation 63, Habitats Regulations (regulation 28, Offshore Regulations) require the application of the precautionary principle. Meaning that if it cannot be excluded, on the basis of objective scientific information, that it is likely to have a significant effect on a SPA and its species an appropriate assessment will be required: see *Waddenzee*.[10]

1.18. Following that appropriate assessment, a project may only be granted consent if the competent authority is convinced that it will not have an adverse effect on the integrity of the European site(s) and their species of concern, having applied the precautionary principle and taken account of the conservation objectives for those sites and their habitats and species. *Waddenzee* confirmed that where doubt remains as to the absence of adverse effects on the integrity of the site, approval should be refused[11] (subject to the considerations of alternative solutions, imperative reasons of overriding public interest and the provision of compensatory measures as set out in regulations 64 & 68).

1.19. An appropriate assessment requires all aspects of the project which could affect the site, its species and its conservation objectives to be identified in the light of the best scientific knowledge in the field.[12] The competent authority,

> *"taking account of the conclusions of the appropriate assessment of the implications…for the site concerned, in the light of the conservation objectives, are to authorise such activity only if they have made certain that it will not adversely affect the integrity of the site. That is the case where no reasonable scientific doubt remains as to the absence of such effects"[13].*

1.20. Integrity of the SPA should be considered as the coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is classified'. A site can be described as having a high degree of integrity where the inherent potential for meeting site conservation objectives is realised, the capacity for self-repair and

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8 As required by Article 3, Birds Directive

9 See regulation 9(1) and 10(1)(2)(3) and (8) of the Habitats Regulations and regulation 6 of the Offshore Regulations. Article 2 Birds Directive imposes a requirement on Member States to maintain all wild bird populations at a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements, or if necessary, to restore the population of these species to that level (Article 2)

10 CJEU Case-127/02; [2004] ECR-7405 at [45]

11 [56]-[57]

12 [61]

13 [59]

self-renewal under dynamic conditions is maintained, and a minimum of external management support is required. When looking at the 'integrity of the site', it is therefore important to take into account a range of factors, including the possibility of effects manifesting themselves in the short, medium and long-term".[14]

1.21. As is clear from the requirements of the Habitats and Offshore Regulations, the assessment of integrity is to be considered by reference to the impact of the project alone and in-combination with other plans and projects, taking account of the site(s) conservation objectives. As clearly set out in *Waddenzee*, para 61:

> *"**61** In view of the foregoing, the answer to the fourth question must be that, under Article 6(3) of the Habitats Directive, **an appropriate assessment of the implications for the site concerned of the plan or project implies that, prior to its approval, all the aspects of the plan or project which can, by themselves or in combination with other plans or projects, affect the site's conservation objectives must be identified in the light of the best scientific knowledge in the field.** The competent national authorities, taking account of the appropriate assessment of the implications of mechanical cockle fishing for the site concerned in the light of the site's conservation objectives, are to authorise such an activity only if they have made certain that it will not adversely affect the integrity of that site. That is the case where no reasonable scientific doubt remains as to the absence of such effects."* (emphasis added)

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

1.22. These EIA requirements state that consent cannot be granted for Environmental Impact Assessment (EIA) development unless the decision-maker has taken into account environmental information including an environmental statement which describes the significant effects, including cumulative effects, of the development on the environment. This will include effects on all wild bird species whether SPA species or not.

1.23. Offshore wind farms have the potential to impact on birds through collision with rotating blades, direct habitat loss, disturbance from construction activities, displacement during the operational phase (resulting in loss of foraging/roosting area) and impact on bird flight lines (i.e. barrier effect) and associated increased energy use by birds for commuting flights between roosting and foraging areas. These additional potential impacts must be taken into account.

The UK Marine Strategy Regulations and Good Environmental Status

1.24. Also of relevance to achieving sustainable development in our seas is the Marine Strategy Framework Directive[15]. This was developed in response to concerns that although existing legislation protected the sea from some specific impacts, it was sectoral and fragmented. To overcome this, the directive seeks to reduce impacts on marine waters regardless of where impacts occur by applying an ecosystem approach.

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[14] See too the European Commission Guidance; Wind Energy Developments and Natura 2000, 2011, page 82-83, paragraph 5.5.3

[15] EU Council Directive 2008/56/EC

1.25. Applying an ecosystem approach is important. Our natural environment is complicated, and the outcome of an impact may manifest elsewhere. It also feeds into the concept of sustainable development and the vision for clean, healthy, safe, productive, and diverse seas; managed to meet the long term needs of nature and people as set out Scotland's National Marine Plan.

1.26. The Marine Strategy Framework Directive was transposed into UK law by the Marine Strategy Regulations 2010. It requires the UK to put in place the necessary management measures to achieve 'Good Environmental Status' (GES) in UK seas by 2020. This involves protecting the marine environment, preventing its deterioration, and restoring it where practical alongside using marine resources sustainably. As with the Habitats Regulations, although the UK has withdrawn from the EU, the legislative requirement for GES remains in place

1.27. Governments of the UK have collectively failed to meet 11 out of the 15 indicators of Good Environmental Status (GES) for our seas with the marine bird indicator moving away from target. For breeding seabirds, more species especially surface feeders who depend on small fish at the surface (35% in the Greater North Sea) are now experiencing frequent, widespread breeding failures[16]. The reduced availability of small fish is largely responsible for these declines and impacts on breeding success.

Section summary

1.28. Taken together, there is a clear legal and policy requirement to protect the marine environment and deliver sustainable development. The UK Marine Strategy is clear in its aims of improving the state of the marine environment through taking a large scale, holistic approach. Therefore proposals which further impact the ability of the UK to achieve GES should be considered carefully. The ability of an application to comply with the vital requirements of the Habitats Regulations which seek the long-term survival of viable populations of Europe's most valuable and threatened species and habitats, must also be scrutinised and considered in detail.

2. Ornithological interest of the Application site

2.1 The UK is of outstanding international importance for its breeding seabirds and wintering marine birds. As with all Annex I and regularly migratory species, the UK has a particular responsibility under the Birds Directive to secure their conservation.

2.2 Seabirds are relatively long-lived, and as a result, their populations are sensitive to small increases in adult mortality. Their survival and productivity rates can be impacted by offshore windfarms directly (i.e. collision) and indirectly (e.g. displacement from foraging areas, additional energy expenditure, potential impacts on forage fish and wider ecosystem impacts such as changes in stratification).

2.3 The probability of seabirds being impacted by an application relates to whether they are likely to be in the area of the development and their behaviour in the vicinity of the development. This will depend on a number of factors, including the application's proximity to seabird colonies, the species within those colonies, the species behaviours (including their foraging range and food

[16] CEFAS Marine Assessment Tool – Marine Breeding Bird Success https://moat.cefas.co.uk/biodiversity-food-webs-and-marine-protected-areas/birds/breeding-successfailure/

preferences), the attraction of the application array itself as a foraging area and the attraction of areas beyond the application array for foraging (which would require birds to transition through the development array or detour around it).

Species of interest

2.4 The key species of interest in relation to the application are Black-legged Kittiwake (Rissa tridactyla), Northern Gannet (Morus Bassanus), Common Guillemot (Uria aalge), Razorbill (Alca tirda) and Atlantic Puffin (Fratercula artica).

2.5 A summary of their population status within the UK is provided in Table 1 below.

Species	% World Population	UK Colony Trends 1986 to 2019
Black-legged Kittiwake[17]	8	Declining
Northern Gannet[18]	55.6	Mostly increasing but a few declining colonies *(N.B. Gannets were badly impacted by HPAI in 2021-22)*
Guillemot[19]	12.9	Some colonies increasing but many declining
Razorbill[20]	20.2	A few colonies increasing but many declining
Atlantic Puffin[21]	9.6	Declining

Table 1: Proportion of the world population of seabird species relevant to the Berwick Bank Offshore Windfarm. Population taken from JNCC Seabird Population Trends and Causes of Change: 1986–2019 Report (2021). N.B. These pre-dates the outbreak of Highly Pathogenic Avian Influenza (HPAI) in 2021-22

Northern gannet

2.6 Northern Gannet are endemic to the North Atlantic although the majority breed in Britain and Ireland. They tend to breed on offshore islands and stacks. Gannets are typically long-lived seabirds, living to an average age of 17 years and not breeding until the age of 5 years. During the breeding season, adults will take it in turn to incubate the single egg for approximately 42-46 days with the chick fledging unaccompanied by its parents after approximately 90 days. Some colonies, such as that on the Bass Rock in the Firth of Forth – the largest gannetry in the world - are particularly large and conspicuous. Gannet can catch fish at depths of 20 meters but also feed from the surface on small shoaling fish such as sandeel.

2.7 During the breeding season gannets are central-place foragers meaning they are constrained to return to the nest after foraging to maintain territories and raise their young. Foraging trip durations are dependent on colony size with birds from larger colonies making longer foraging trips (both in distance and duration)[22].

2.8 Gannet were particularly badly impacted by Highly Pathogenic Avian Influenza (HPAI) during the 2022 breeding season with large numbers of deaths reported. On the Bass Rock a catastrophic

17 https://jncc.gov.uk/our-work/black-legged-kittiwake-rissa-tridactyla/
18 https://jncc.gov.uk/our-work/northern-gannet-morus-bassanus/
19 https://jncc.gov.uk/our-work/guillemot-uria-aalge/
20 https://jncc.gov.uk/our-work/razorbill-alca-torda/
21 https://jncc.gov.uk/our-work/atlantic-puffin-fratercula-arctica/
22 Wakefield, ED, Bodey, TW, Bearhop, S et al. (19 more authors) 2013. *Space Partitioning Without Territoriality in Gannets.* Science, 341 (6141). 68 - 70. ISSN 0036-8075

breeding failure was reported which is likely to vastly impact their future population numbers and the robustness of those populations to additional mortality.

2.9 They are amber listed in the Birds of Conservation Concern.

2.10 Northern gannet have been assessed as having a high vulnerability to collisions with rotating turbine blades (Furness *et al.,* 2013[23], Wade *et al.,* 2016[24]), partly due to their flight altitude and manoeuvrability. Breeding gannets tracked with GPS from Helgoland in the eastern North Sea travelled around and through operational wind farms. However, it is unclear whether behaviour before and after construction differs[25].

2.11 There is a need to assess the possible impacts to gannets throughout the year as behavioural constraints change; starting when they arrive back at the colony for the breeding season until they leave on migration, and then throughout the winter. During autumn and winter potential interaction with turbines will not be limited to birds from the closest breeding colony but birds from across the breeding range as they disperse and travel south.

2.12 There is consistent evidence of wind farm avoidance by non-breeding gannets and gannets on migration. But little is known about the behavioural responses of breeding gannets to offshore turbines resulting from a lack of operational turbines within foraging range of breeding colonies.

Black-legged kittiwake

2.13 Black-legged Kittiwake are members of the gull family. They tend to nest on vertical rocky-sea cliffs and during the breeding season feed on energy rich pelagic shoaling fish, such as sandeel, sprat and juvenile herring. Kittiwakes are surface feeders and are highly dependent on sandeels in the breeding season, as such they are particularly vulnerable to food shortage. During the breeding season kittiwakes are central-place foragers meaning they are constrained to return to the nest after foraging to maintain territories and raise their young. When not in attendance at the nest or away on a foraging trip, kittiwakes use the sea below the cliffs for maintenance behaviours such as loafing (spending time on the water to preen or rest, not related to feeding), preening and bathing. During the breeding season the highest densities of kittiwakes at sea are within 1km of the colony[26].

2.14 Kittiwake are red listed in the Birds of Conservation Concern and on the OSPAR list of threatened and/or declining species and have been assessed by the IUCN as vulnerable to global extinction. They are particularly susceptible to collision risk but are also vulnerable to distributional changes as a result of the presence of turbines.

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[23] Furness, R. W., Wade, H. M., & Masden, E. A. 2013. *Assessing vulnerability of marine bird populations to offshore wind farms.* Journal of environmental management, *119*, 56-66.

[24] Wade, H. M., Masden, E. A., Jackson, A. C., & Furness, R. W. 2016. *Incorporating data uncertainty when estimating potential vulnerability of Scottish seabirds to marine renewable energy developments*. Marine Policy, *70*, 108-113.

[25] Peschko V, Mendel B, Mercker M, Dierschke J, Garthe S. 2021. *Northern gannets (Morus bassanus) are strongly affected by operating offshore wind farms during the breeding season*. J Environ Manage. 1; 279:111509. doi: 10.1016/j.jenvman.2020.111509

[26] McSorley C.A., Dean B.J., Webb A. & Reid, J.B. 2003. *Seabird use of waters adjacent to colonies: Implications for seaward extensions to existing breeding seabird colony Special Protection Areas*. JNCC Report No. 329, JNCC, Peterborough.

2.15 As shown in Figure 1, overlaying the application array area on work done by Cleasby *et al* (2018)[27] to combine habitat modelling and hotspot analysis indicates a medium to high species distribution usage across the application site. It must be noted that this map is useful but not the full picture; while the site was historically thought to be important, recent site surveys, including that undertaken by the Applicant as part of this application, indicate the importance is greater than previously thought.

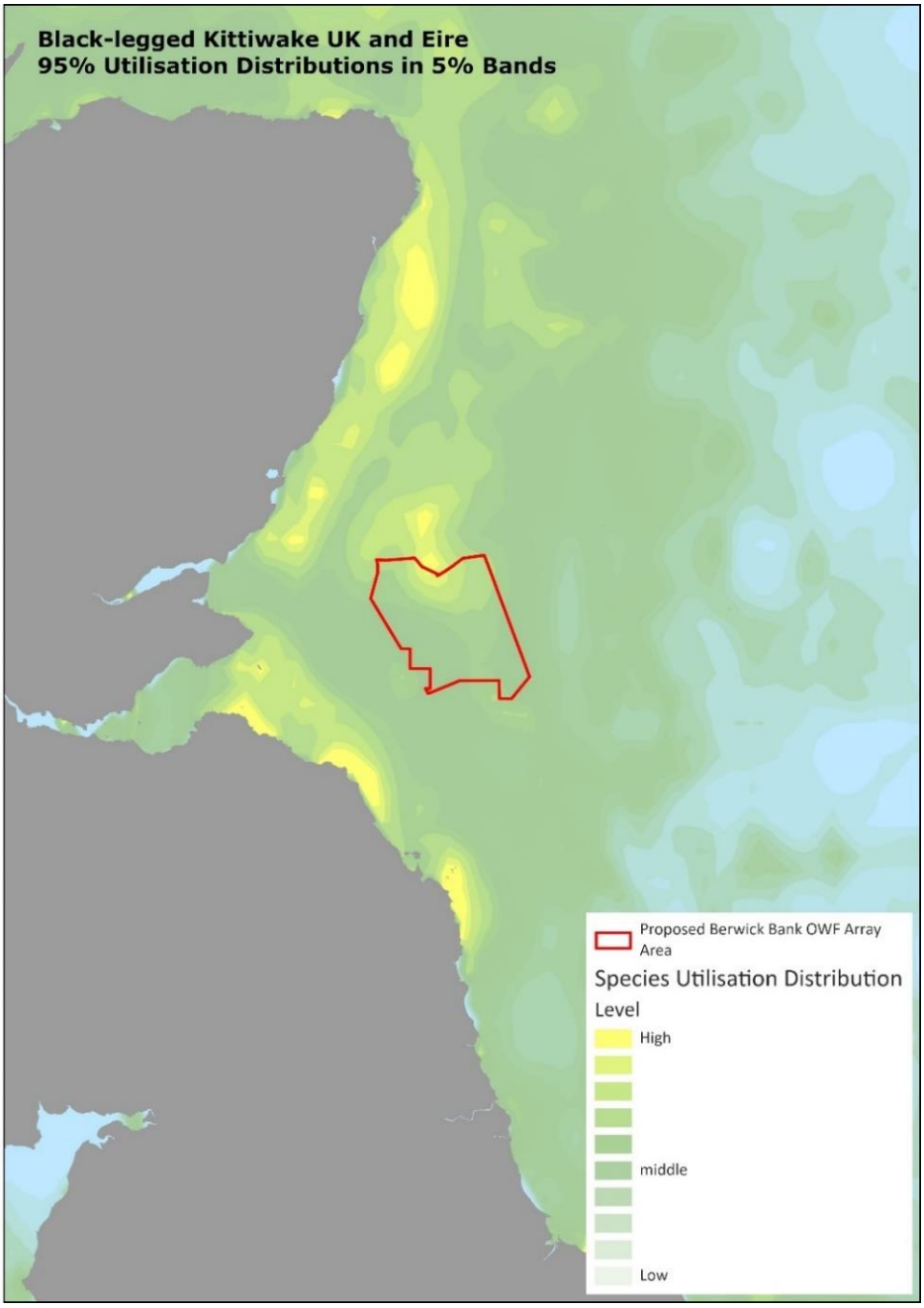

Figure 1: Black Legged Kittiwake UK and Eire 95% Utilisation distribution in 5% bands, from Cleasby et al (2018)

[27] Cleasby IR, Owen E, Wilson LJ, and Bolton M. 2018. *Combining habitat modelling and hotspot analysis to reveal the location of high density seabird areas across the UK: Technical Report*. RSPB Research Report no. 63. RSPB Centre for Conservation Science, RSPB, The Lodge, Sandy, Bedfordshire, SG19 2DL.

Common guillemot

2.16 Common Guillemot are member of the auk family along with Puffin and Razorbill. They typically form highly dense colonies and lay a single egg (without a nest) on a cliff, narrow ledges, or other inaccessible areas. They tend to eat fish and crustaceans. Guillemots are typically long-lived seabirds, living to an average age of 23 years and not breeding until the age of 5 years. Nesting in tightly packed colonies, they often lay their single egg directly on the cliff without any nest material. Breeding success is highest where birds are most tightly packed. Adults will incubate the egg for 28-37 days, fledging then taking place when the chick is ~3 weeks old. The chick will then complete its growth at sea accompanied by its male parent.

2.17 The response of guillemots to offshore wind farms is mixed although there is a paucity of data for breeding birds. Non-breeding birds have been shown to avoid offshore wind farms, as have breeding birds in the southern North Sea whereas in the Irish Sea, guillemots have shown no changes in abundance post construction and at another site, increased in abundance. More recent work has suggested that there may be some habituation over time to the presence of wind farms.

2.18 They are amber listed in the Birds of Conservation Concern.

Razorbill

2.19 Razorbill tend to nest hidden from view on small ledges or in cracks and scree of rocky cliffs faces and on boulder-fields. They are typically long-lived seabirds, living to an average age of 13 years and not breeding until the age of 4 years. During the breeding season, adults will incubate the single egg for approximately 32 days with the chick fledging after approximately 21 days. The chick will then complete its growth at sea accompanied by its male parent.

2.20 Adult razorbill feed on 0-group sandeel, chick diet comprises of 0-group sandeel, 1+ group sandeel and sprat[28]. Maximum foraging trip ranges have been found to vary between colony. The maximum recorded foraging range is 312 km from Fair Isle, however, maximum distances recorded from 5 other colonies range between 36 – 92km[29].

Puffin

2.21 Puffin are one of the most iconic seabird species around Scotland with their brightly coloured beaks during the breeding season. They tend to nest in burrows and so are susceptible to mammalian predators. There is some evidence their diet changes seasonally[30] but during the breeding season, they typically feed on shoaling fish such as sandeel, sprat and herring which they catch by underwater pursuit.

2.22 They are vulnerable to displacement[28] which can lead to a loss of feeding grounds and excess energy expenditure as they take less direct routes to reach alternative prey sources.

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[28] Thaxter et al. 2013. *Modelling the Effects of Prey Size and Distribution on Prey Capture Rates of Two Sympatric Marine Predators*. PLoS One. https://doi.org/10.1371/journal.pone.0079915

[29] Woodward, I., Thaxter, C.B., Owen, E. & Cook, A.S.C.P. 2019. *Desk-based revision of seabird foraging ranges used for HRA screening*. BTO Research Report No. 724

[30] Harris, M., Leopold, M.F., Jensen, J.-K., Meesters, E.H. & Wanless, S. 2015. *The winter diet of the Atlantic Puffin Fratercula arctica around the Faroe Islands.* Ibis 157: 468– 479

2.23 Puffin are red listed in the Birds of Conservation Concern and have been assessed by the IUCN as vulnerable to global extinction.

Proximity of seabird colonies

2.24 The application array location is close to several SPAs with qualifying features within foraging range of the application array area. This the Outer Firth of Forth and St Andrews Bay Complex SPA, the Forth Islands SPA, Fowlsheugh SPA and St Abb's Head to Fast Castle SPA.

2.25 As SPAs, these sites are subject to general duties to protect, conserve and restore the designated features of the site to meet their conservation objectives, to prevent deterioration of the site's habitats and to prevent significant disturbance to the sites. If an application might impact a qualifying feature, as set out in Chapter 1, assessment in accordance with the Habitats Regulations is required.

2.26 There are also other non-SPA seabird breeding colonies in the area too. These include the black-legged kittiwake colony at Dunbar Castle, and the common guillemot, razorbill, and black-legged kittiwake colonies at Inchkeith. Although not subject to the requirements of the habitat regulations, as breeding birds they are protected species and any significant effects to them should be assessed as part of the EIA process.

Outer Firth of Forth and St Andrews Bay Complex SPA

2.27 The Outer Firth of Forth and St Andrews Bay Complex SPA[31] is a large estuarine and marine site consisting of the adjacent Firth of Forth and Tay. It attracts one of the largest and most diverse marine bird concentrations in Scotland. It complements adjacent SPAs including the Forth Islands SPA.

2.28 It was designated in 2020 and qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

2.28.1 Migratory species including:

a. **Northern gannet** (*Morus bassanus*), representing 1.4% of biogeographical population and 2.7% of the Great Britain population.

2.28.2 In excess of 20,000 individual seabirds during the breeding season including:

a. **Atlantic puffin** (*Fratercula arctica*) representing 5.3% of the Great Britain population,
b. **black-legged kittiwake** (*Rissa tridactyla*) representing 1.6% of the Great Britain population and;
c. more than 2,000 individual **common guillemots** (*Uria aalge*).

2.28.3 In excess of 20,000 individual seabirds during the non-breeding season including more than 2,000 individual **common guillemot**, **black-legged kittiwake,** and **razorbill** (*Alca torda*).

[31] Outer Firth of Forth and St Andrews Bay Complex SPA Citation

2.29 The draft conservation objectives for the Outer Firth of Forth and St Andrews Bay Complex SPA are as follows:

2.29.1 *To ensure that the qualifying features of the Outer Firth of Forth and St Andrews Bay Complex SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.*

2.29.2 *To ensure that the integrity of the Outer Firth of Forth and St Andrews Bay Complex SPA is restored in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature:*

a. The populations of qualifying features are viable components of the site.
b. The distributions of the qualifying features throughout the site are maintained by avoiding significant disturbance of the species.
c. The supporting habitats and processes relevant to the qualifying features and their prey/food resources are maintained, or where appropriate restored, at the Outer Firth of Forth and St Andrews Bay Complex SPA.

2.30 Black-legged Kittiwake and other species are considered to be in an unfavourable condition and therefore there is an overarching 'restore' objective for the site. Should plans or projects compromise the ability of the unfavourable qualifying features to recover (e.g. result in a further decline or accelerate the rate of decline, or prevent a recovery from occurring), then the Outer Firth of Forth and St Andrews Bay Complex SPA will not make an appropriate contribution to achieving Favourable Conservation Status (FCS) across the Atlantic Biogeographic Region.

Forth Islands SPA

2.31 The Forth Islands SPA[32] consists of a series of islands in the Firth of Forth. The islands of Inchmickery, Isle of May, Fidra, The Lamb, Craigleith and Bass Rock were classified in 1990 and an extension to the site, consisting of Long Craig was classified in 2004.

2.32 It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

2.32.1 Migratory species including:

a. **Northern gannet**, representing 8.2% of world's biogeographical population and 13.6% of the Great Britain population); and
b. **Atlantic Puffin,** (representing 1.5% of the total F.a.grabae biogeographic population and 3.1% of the Great Britain population).

2.32.2 In excess of 20,000 individual seabirds during the breeding season including, in addition Northern gannet and Atlantic Puffin:

a. **Razorbill** representing 1.4% of the Great Britain population;
b. **Common guillemot** representing 2.2% of the Great Britain population; and
c. **black-legged kittiwake** representing 1.7% of the Great Britain population.

[32] Forth Islands SPA Citation and Conservation Objectives

2.33 The conservation objectives for the Forth Islands SPA are as follows:

2.33.1 *To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and*

2.33.2 *To ensure for the qualifying species that the following are maintained in the long term:*

a. *Population of the species as a viable component of the site*
b. *Distribution of the species within site*
c. *Distribution and extent of habitats supporting the species*
d. *Structure, function and supporting processes of habitats supporting the species*
e. *No significant disturbance of the species*

Fowlsheugh SPA

2.34 Fowlsheugh SPA[33] is an of sheer cliffs on the east coast of Aberdeenshire plus a two-kilometre extension into the marine environment. The cliffs were designated in 1992 and the marine extension in 2009.

2.35 It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

2.35.1 Migratory species including:

a. **Common guillemot** representing 5% of the Great Britain population; and
b. **black-legged kittiwake** representing 7.5% of the Great Britain population.

2.35.2 In excess of 20,000 individual seabirds during the breeding season including:

a. **Razorbill** representing 3.9% of the Great Britain population.

2.36 The conservation objectives for the Fowlsheugh SPA are as follows:

2.36.1 *To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and*

2.36.2 *To ensure for the qualifying species that the following are maintained in the long term:*

a. *Population of the species as a viable component of the site*
b. *Distribution of the species within site*
c. *Distribution and extent of habitats supporting the species*
d. *Structure, function and supporting processes of habitats supporting the species*
e. *No significant disturbance of the species*

[33] Fowlsheugh SPA Citation and Conservation Objectives

St Abb's Head to Fast Castle SPA

2.37 St Abb's Head to Fast Castle SPA[34] comprises an area of sea cliffs and 1km marine extension stretching over 10km along the Berwickshire Coast. The cliffs were designated in 1997 and the marine extension in 2009.

2.38 It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

2.38.1 In excess of 20,000 individual seabirds during the breeding season including:

a. **Razorbill** representing 1% of the Great Britain population;
b. **Common guillemot** representing 3% of the Great Britain population; and
c. **Black-legged kittiwake** representing 4% of the Great Britain population.

2.39 The conservation objectives for the St Abb's Head to Fast Castle SPA are as follows:

2.39.1 *To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and*

2.39.2 *To ensure for the qualifying species that the following are maintained in the long term:*

a. Population of the species as a viable component of the site
b. Distribution of the species within site
c. Distribution and extent of habitats supporting the species
d. Structure, function and supporting processes of habitats supporting the species
e. No significant disturbance of the species

Foraging interest

2.40 The application array area is an important foraging area. It overlaps the Firth of Forth Banks Complex Marine MPA[35]. This is protected under the Marine and Coastal Access Act 2009 and Marine (Scotland) Act 2010 for ocean quahog aggregations, offshore subtidal sands and gravel habitats, the shelf banks and mounds, and moraines representative of the Wee Bankie geomorphological feature. The sand and gravel habitat of the Wee Bankie and Berwick Bank are important for sandeels, and these features have been identified as critical for foraging seabirds and seals.

2.41 The importance of the application site for sandeel (and by association foraging seabirds) is further highlighted through information on fishing grounds. As shown in Figure 2, the application array area is located on top of a sandeel fishing area – which is indicative of an area of high sandeel abundance. There is no active fishery here due to the Northeast UK sandeel closure which has covered part of sandeel area (SA) 4 since 2000[36].

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34 St Abb's Head to Fast Castle SPA Citation and Conservation Objectives
35 Firth of Forth Banks Complex MPA Citation and Conservation Objectives
36 Case Study: Sandeels in Scottish Waters

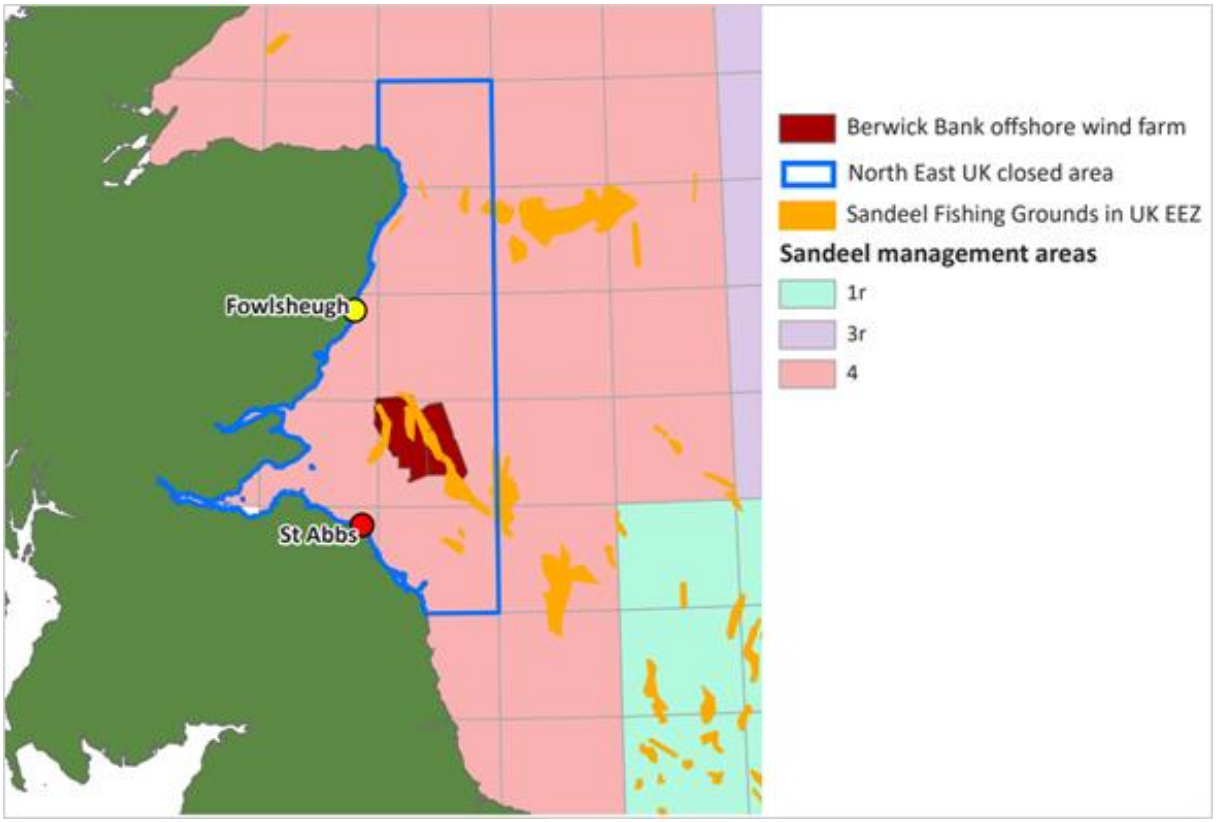

Figure 2: Berwick Bank Offshore windfarm development array area overlying sandeel fishing grounds in the UK EEZ, the Northeast UK sandeel closure area and sandeel management areas

2.42 Placing a windfarm on top of a known foraging area containing sandeels, a key prey species for seabirds, increases the likelihood that birds will be in the area and therefore increases the potential for impact through collision with the turbines or displacement from the foraging area.

2.43 It should also be recognised that sandeels, themselves which are Priority Marine Features (PMFs) in Scotland due to their ecosystem importance[37], are vulnerable to impacts from development (see Section 4, Sandeel assessment0). Placing a windfarm on top of a key sandeel spawning and nursery ground could have wider implications for recruitment into the wider sandeel subpopulation with secondary impacts to seabirds and other sandeel-dependent species.

Section summary

2.44 The probability of seabirds being impacted by this application are extremely high. The application array it is located within an important area for wildlife. It is within foraging range of birds from SPA breeding colonies with qualifying features susceptible to impacts from offshore windfarms. It is also located within an area used by foraging seabirds and is on top of critical sandeel habitat. Taking these elements together, there is high likelihood that a windfarm in this location would result in severe impacts to seabird species.

[37] Case Study: Sandeels in Scottish Waters

2.45 With this in mind, RSPB Scotland wish to highlight to Marine Scotland and Scottish ministers that sediments and other environmental aspects that make an area of sea a good nursery and spawning area for fish and foraging area for seabirds cannot be relocated. It is also not possible to relocate seabird breeding colonies. It is however possible to put an offshore windfarm development in a different location and there are alternative sites available.

3. Offshore ornithology assessment

Introduction

3.1 RSPB Scotland recognise that the Applicant invested a great amount of time and resource into the ornithological assessment process and wish to formally express that we welcome and appreciate this work.

3.2 In this section, we have provided commentary on the impact methodology. With the exception of gannet collision risk modelling, consider the scoping approach a better reflection of the likely impact of the proposed development. For gannet collision risk modelling, RSPB Scotland disagrees the approach of the SNCBs as the avoidance rate is based on the non-breeding season and do not reflect behaviours during the breeding season.

3.3 As set out in Searle et al (2023a)[38], assessing impacts of offshore windfarms and other renewables developments is inherently uncertain. This uncertainty is propagated throughout the impact assessments, as there are not only direct impacts, but ecosystem wide impacts that can change, for example, the abundance and availability of prey. Multiple data sources and modelling techniques are used to capture a simplified version of reality. They do not fully capture the complexity of seabird behavioural or demographic processes in a dynamic marine environment.

3.4 It is therefore vital that the precautionary approach required by the Habitats Regulations is taken. This means if scientific data is incomplete or hard to get and it is not possible to complete a full evaluation of all possible or potential risks an activity/development may cause, account should be taken of all possible harm. Potential harm should not be dismissed due to the lack of scientific data.

3.5 Importantly, the precautionary principle requires the Applicant to demonstrate with scientific certainty that something would not be harmful. The concept of something being overly precautionary dismisses the inherent uncertainty in modelling and overlooks the simplistic version of reality that the modelling captures.

3.6 Not recognising these uncertainties risks poorly informed decisions being made. Furthermore an underestimation of impacts will have repercussions when consenting later offshore wind development. Already the dismissal of uncertainty in impact predictions for previously consented offshore windfarms in the Moray Firth is causing problems in consenting smaller projects in what may be less environmentally sensitive areas. If a precautionary approach is taken from the beginning, the likelihood of irreversible damage occurring is reduced even whilst our knowledge base is incomplete and modelling improves.

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[38] Searle, K. R., O'Brien, S. H., Jones, E. L., Cook, A. S. C. P., Trinder, M. N., McGregor, R. M., Donovan, C., McCluskie, A., Daunt, F., and Butler, A., 2023a. *A framework for improving treatment of uncertainty in offshore wind assessments for protected marine birds*, ICES Journal of Marine Science, 2023;, fsad025, https://doi.org/10.1093/icesjms/fsad025

Impact methodology

Collision Risk Modelling

3.7 In order to assess the mortality that could arise from avian collision with turbine blades, the Applicant has used the Band Collision Risk Model, (CRM) in both deterministic and stochastic formulations (sCRM). This approach is welcomed by RSPB Scotland. This Band model combines a series of parameters describing the turbine design and operation with estimates of a bird's size and behaviour to generate a predicted number of birds that would collide with a turbine over a given time period. The stochastic formulation was initially developed by Masden (2015) and then produced in an easier to use interface by McGregor et al, (2018). The stochastic version allows for some account of uncertainty and variability in parameters to be made.

3.8 The input parameters related to bird size and behaviour include a parameter known as "Avoidance Rate". This is defined by Band (2012) as the inverse of the ratio of the number of actual collisions to number of predicted collisions. As such "Avoidance Rate" is a misnomer; it is a catch all term for the inconsistency between predicted and actual mortalities, an inconsistency that can be derived from a variety of sources, including avoidance behaviour per se, survey error, natural variability, and model misparameterisation.

3.9 The Applicant has used Avoidance Rates (see above) in the sCRM, as recommended by the Statutory Nature Conservation Bodies (SNCBs 2014) including NatureScot. Whilst RSPB Scotland agrees with the majority of the advised rates including the use of a 98.9% avoidance rate for non-breeding gannets, in our opinion, a 98% avoidance rate is more appropriate for breeding gannets. This is because the figures used for the calculation of avoidance rates advocated by the SNCBs are largely derived from the non-breeding season for gannet[39,40]. During the breeding season, gannets are constrained to act as central placed foragers meaning they return to the colony after feeding in order to maintain territories, incubate eggs and provide for chicks. Once chicks have fledged adult gannets remain at sea and no longer visit the colony. Differences in behaviour between the breeding and non-breeding season are likely to result in changes in avoidance behaviour.

3.10 There is evidence that the foraging movements and behaviour of gannets will vary in relation to stage of the breeding season in response to changes in the distribution and abundance of prey and changing constraints as they progress from pre-laying to chick-rearing[41]. GPS tracking of gannets breeding on the Bass Rock between 2010 and 2021 has shown variation in the two-dimensional foraging behaviour of birds across the breeding season (prior to chick-rearing and during chick-rearing), between sexes, and between years[41,42,43] . Three-dimensional tracking of gannets during

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[39] Cook, A S C P, Humphreys, E. M., Masden, E. A., & Burton, N. H. K. 2014. *The Avoidance Rates of Collision Between Birds and Offshore Turbines*. Edinburgh.

[40] Cook, A.S.C.P., Humphreys, E.M., Bennet, F., Masden, E.A., Burton, N.H.K. 2018. *Quantifying avian avoidance of offshore wind turbines: Current evidence and key knowledge gaps*. Marine Environmental Research, 140, 278-288

[41] Lane, J.V., Jeavons, R., Deakin, Z., Sherley, R.B., Pollock, C.J., Wanless, R.J., Hamer, K. C., 2020. *Vulnerability of northern gannets to offshore wind farms; seasonal and sex specific collision risk and demographic consequences*. Marine Environmental Research. 162.

[42] Cleasby, I.R., Wakefield, E.D., Bodey, T.W., Davies, R.D., Patrick, S.C., Newton, J., Votier, S.C., Bearhop, S., Hamer, K.C. 2015a. *Sexual segregation in a wide-ranging marine predator is a consequence of habitat selection. Marine Ecology Progress Series*, 518, 1-12

[43] Lane, J.V. and Hamer, K.C. 2021. *Annual adult survival and foraging of gannets at Bass Rock, Scotland: Report to the Ornithology subgroup of the Forth and Tay Regional Advisory Group (FTRAG-O*) – October 2021

chick-rearing has also revealed that flight height and flight speed both vary according to behaviour, sex and wind conditions[44,45,46] and similar patterns have been recorded in other seabirds[47] . Because any error in the use of flight height and flight speed as input parameters in the CRM should be corrected for in the use of the Avoidance Rate, any seasonal variation in these parameters should also be reflected in variation in the Avoidance Rate, in the absence of any actual evidence from the breeding season. However, RSPB Scotland welcomes the fact that the Applicant has present breeding season collision estimates for gannet using a 98% Avoidance Rate in the EIA Volume 2, Chapter 11 and its Appendix 11.3, although these are not taken forward to any conclusions of AEoSI.

3.11 As described above, the correction factor known as Avoidance Rate adjusts the model outputs to reflect the inconsistency between predicted and actual collisions, derived from a variety of sources. As the stochastic model accounts for some of these, in particular natural variability, the sCRM will require a different set of Avoidance Rates, which have yet to be determined, although JNCC are in the process of completing a project that does this. In the absence of sCRM specific Avoidance Rates, scoping advice for Berwick Bank asked that the sCRM was only used for context. The Applicant has provided the outputs of the sCRM, but has used Avoidance Rates from Bowgen and Cook (2018). RSPB Scotland disagrees with this as the work from a single wind farm that this report is drawn from has acknowledged limitations that prevent conclusions being drawn from it. These include the fact that fishing vessels were present on the periphery of the wind farm during the study, thereby biasing the results, and that due to the wind farm being of some distance from breeding colonies, that gannets and kittiwakes seen were non-breeders, or were recorded out with the breeding season.

Gannet

3.12 Northern gannet have been assessed as having a high vulnerability to collisions with rotating turbine blades (Furness *et al.,* 2013[48], Wade *et al.,* 2016[49]), partly due to their flight altitude and manoeuvrability. The Applicant has carried out collision risk modelling for the gannet present on the development site, (Appendix 11.3) using both a "Developer" approach and a "Scoping" approach. The developer approach uses the monthly mean density of flying birds from the two years of survey, whereas the scoping approach uses the monthly peak density, as recommended by NatureScot, Marine Scotland Science and RSPB Scotland. As such the developer approach can be seen as the least precautionary.

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[44] Cleasby, I.R., Wakefield, E.D., Bearhop, S., Bodey, T.W., Votier, S.C., Hamer, K.C., 2015b. *Three-dimensional tracking of a wide-ranging marine predator: flight heights and vulnerability to offshore wind farms. Journal of Applied Ecology*, 52, 1474–1482

[45] Lane, J.V., Spracklen, D.V., Hamer, K.C., 2019. *Effects of windscape on three-dimensional foraging behaviour in a wideranging marine predator, the northern gannet.* Marine Ecology Progress Series, 628, 183–1

[46] Lane, J.V., Jeavons, R., Deakin, Z., Sherley, R.B., Pollock, C.J., Wanless, R.J., Hamer, K. C., 2020. *Vulnerability of northern gannets to offshore wind farms; seasonal and sex specific collision risk and demographic consequences*. Marine Environmental Research. 162.

[47] Masden, E.A., Cook, A.S.C.P., McCluskie, A., Bouten, W., Burton, N.H.K, Thaxter, C. 2021. *When speed matters: the importance of flight speed in an avian collision risk model.* Environmental Impact Assessment Review, 90

[48] Furness, R. W., Wade, H. M., & Masden, E. A. 2013. *Assessing vulnerability of marine bird populations to offshore wind farms.* Journal of environmental management, *119*, 56-66

[49] Wade, H. M., Masden, E. A., Jackson, A. C., & Furness, R. W. 2016. *Incorporating data uncertainty when estimating potential vulnerability of Scottish seabirds to marine renewable energy developments.* Marine Policy, *70*, 108-113

3.13 The Applicant has presented results for RSPB Scotland preferred position on avoidance rate for the breeding season, as described above. The Applicant has also presented results using the sCRM, although these, as per scoping, should be viewed as contextual information. The results are shown below. As there is currently no avoidance rate to use with gannet and Option 3 of the Band model, these results are for Option 2 only.

Approach	Breeding season	Non-breeding season	Total
Developer	138.43	15.05	153.48
Scoping	169.65	21.37	191.02
RSPB Scotland	308.55	21.37	329.92

Table 2: Comparison of annual collision risk modelling showing gannet mortality predictions using the developer, scoping, and RSPB Scotland preferred approaches.

Kittiwake

3.14 The Applicant has carried out collision risk modelling for the kittiwake present on the development site, (Appendix 11.3) using both a "Developer" approach and a "Scoping" approach. The developer approach uses the monthly mean density of flying birds from the two years of survey, whereas the scoping approach uses the monthly peak density, as recommended by NatureScot, Marine Scotland Science and RSPB Scotland. As such the developer approach can be seen as the least precautionary.

Approach	Breeding season	Non-breeding season	Total
Developer	425.73	259.17	684.90
Scoping	616.88	369.19	986.07

Table 3: Comparison of annual collision risk modelling showing kittiwake mortality predictions using the developer and scoping approaches.

Distributional responses

3.15 Distributional responses to the presence of a wind farm can occur through displacement or barrier effects. Displacement arises when there is a significant reduction in the density of birds within the wind farm footprint and the surrounding area (the buffer zones), which may be partial or total displacement, compared with the baseline situation. Displacement is equivalent to habitat loss and may be temporary or permanent, depending on whether or not there is habituation, *i.e.* adjustment to the presence of the wind farm and a resumption of use of the area. It may be triggered during construction, or during operation, depending on the direct cause.

3.16 Barrier effects arise when an obstacle, such as a wind farm, causes birds to divert from their intended path in order to reach their original destination. It is generally considered to act mainly on birds in flight (SNCBs 2022). As such they are similar, though not the same, as displacement effects. However, in practical terms it is currently not possible to disentangle the two and so barrier and displacement effects are considered together in impact assessment, as per SNCB advice (*Ibid.*) This assessment must be made on all the birds present on site, regardless of whether in flight or on the water.

3.17 There are two methods for the assessment of distributional responses to the presence of turbines. The first is the Matrix approach, which is somewhat simplistic. It relies on two metrics, displacement rate and mortality rate, which are derived from expert opinion, and often presented as a range in order to reflect the considerable uncertainty inherent in both. It is carried out for two

distinct time periods, the breeding and non-breeding season, although these may be further sub-divided. Both metrics are proportions or percentages. The displacement rate is the proportion of birds that will either be displaced from the wind farm or prevented from flying through (barrier effects). Mortality rate is the number of birds subject to these displacement or barrier effects that will die as a consequence. The metric is applicable only to fully sized individuals and as such, the method does not account for any effects of breeding success. For long lived, low fecundity species like seabirds, the most likely response to additional stressors during the breeding season is the abandonment of a breeding attempt, or chick death through poor attendance. As such, the omission of chick mortality can be seen as a major limitation of the approach. Conversely, the ability for the approach to consider both breeding and non-breeding seasons is a considerable advantage.

3.18 The SeabORD approach uses a simulation model to predict the time/energy budgets of breeding seabirds during the chick-rearing period and translates these into projections of adult annual survival and productivity for each individual and at the population level. Underpinning the model are empirical data including tracking data and so it can be considered to have more basis in biological reality than the Matrix approach. Furthermore, as it explicitly models productivity it accounts for any chick death or abandonment of breeding attempts as a result of distributional change. Unfortunately, the Applicant incorrectly quotes the SeabORD authors (in Appendix 11.4 Annex D, paragraph 54) as having advised not to rely on the additional mortality of chicks to interpret the impact of wind farms, as the corresponding results for adults have been found to be more accurate. In fact, RSPB Scotland have confirmed with the model authors that they do not advise this, and, as described above, additional mortality of chicks is one of the advantages of the approach. However, the approach is only currently suitable for the breeding season, and so the Matrix approach must be used for the non-breeding season.

3.19 For the assessment, the Applicant has presented a range of values to be used in the matrix approach, both as a "scoping" approach, which aligns with advice from NatureScot, Marine Scotland Science and RSPB Scotland, and their own preferred, "developer" approach. A key difference between these approaches are the displacement rates and consequent mortality rates used in the matrix. The approach advocates a range of mortality rates, as a reflection of the considerable uncertainty inherent in displacement assessment. The developer approach only presents a single value for mortality rate. With the exception of kittiwake, the developer approach is less precautionary than the scoping approach. While the precautionary nature of the scoping response is a necessary response to uncertainty, it is not overly precautionary; other SNCBs such as Natural England, advocate higher displacement and mortality rates as part of their preferred range[50] For kittiwake, the developer approach mortality rate, 2%, lies in the middle of the range favoured by the scoping approach (1% - 3%). Other differences in the approaches include the assessment of kittiwake and puffin in the non-breeding season and the consideration of "bio-seasons", as defined in Furness (2015)[51].

3.20 Below, we summarise the predicted mortalities arising from distributional change for both approaches, for both the development array without buffer and with a 2km buffer

[50] For example see Hornsea Project 4 advice – Tab B EN010098-001925-Natural England - Risk and Issues Log at Deadline 6
[51] Furness, R.W. 2015. *Non-breeding season populations of seabirds in UK waters: Population sizes for Biologically Defined Minimum Population Scales (BDMPS).* Natural England Commissioned Reports, Number 164

Gannet

3.21 For gannet, the variety of approaches and inclusion or non- inclusion of a buffer, suggest a range of possible predicted mortalities of between 34 (developer approach, no buffer) and 138 (scoping approach, 3% mortality, 2km buffer). The most likely range is **47-138** mortalities per annum, arising as a consequence of distributional changes due to the presence of the wind farm.

	Rates			**Predicted mortality**											
	Displac	**Mortality**		**No buffer**						**2km buffer**					
		Breeding	Non-breeding	Breeding		Non-breeding		Total		Breeding		Non-breeding		Total	
Scoping	70%	1% & 3%	1 & 3%	26	76	8	22	34	98	34	100	13	38	**47**	**138**
Developer	70%	1%	1%	26		8		34		34		13		47	

Table 4: Comparison of annual predicted mortalities arising from displacement using the scoping and developer approach for Gannet.

Kittiwake

3.22 For kittiwake, the variety of approaches and inclusion or non- inclusion of a buffer, suggest a range of possible predicted mortalities of between 104 (developer approach, no buffer,) and 416 (scoping approach, 3% mortality, 2km buffer). For the developer approach, there was no non-breeding season assessment. The most likely range is **139-416** mortalities per annum arising as a consequence of distributional changes due to the presence of the wind farm.

	Rates			**Predicted mortality**											
	Displac	**Mortality**		**No buffer**						**2km buffer**					
		Breeding	Non-breeding	Breeding		Non-breeding		Total		Breeding		Non-breeding		Total	
Scoping	30%	1 & 3%	1 & 3%	52	155	48	143	100	298	64	191	75	225	**139**	**416**
Developer	30%	2%	n/a	104		n/a		104		127		n/a		127	

Table 5: Comparison of annual predicted mortalities arising from displacement using the scoping and developer approach for Kittiwake.

Guillemot

3.23 For guillemot, the variety of approaches and inclusion or non- inclusion of a buffer, suggest a range of possible predicted mortalities of between 570 (developer approach, no buffer) and 3021 (scoping approach, 5% mortality in the breeding season, 3% in the non-breeding season and 2km buffer). The most likely range is **1601-3021** mortalities per annum arising as a consequence of distributional changes due to the presence of the wind farm.

	Rates			**Predicted mortality**											
	Displac	**Mortality**		**No buffer**						**2km buffer**					
		Breeding	Non-breeding	Breeding		Non-breeding		Total		Breeding		Non-breeding		Total	
Scoping	60%	3 & 5%	1 & 3%	1075	1791	205	613	1280	2404	1335	2225	266	796	**1601**	**3021**
Developer	50%	1%	1%	299		171		570		371		221		592	

Table 6: Comparison of annual predicted mortalities arising from displacement using the scoping and developer approach for Guillemot.

Razorbill

3.24 For razorbill, the variety of approaches and inclusion or non- inclusion of a buffer, suggest a range of possible predicted mortalities of between 60 (developer approach, no buffer) and 441 (scoping approach, 5% mortality in the breeding season, 3% in the non-breeding season and 2km buffer). The most likely range is **179-441** mortalities per annum arising as a consequence of distributional changes due to the presence of the wind farm.

	Rates			**Predicted mortality**											
	Displac	**Mortality**		**No buffer**						**2km buffer**					
		Breeding	Non-breeding	Breeding		Non-breeding		Total		Breeding		Non-breeding		Total	
Scoping	60%	3 & 5%	1 & 3%	55	92	53	157	108	249	73	122	106	319	**179**	**441**
Developer	50%	1%	1%	16		44		60		21		88		109	

Table 7: Comparison of annual predicted mortalities arising from displacement using the scoping and developer approach for Razorbill.

Puffin

3.25 For puffin, the variety of approaches and inclusion or non- inclusion of a buffer, suggest a range of possible predicted mortalities of between 17 (developer approach, no buffer) and 136 (scoping approach, 5% mortality in the breeding season and 2km buffer). The most likely range is **82-136** mortalities per annum arising as a consequence of distributional changes due to the presence of the wind farm.

	Rates			**Predicted mortality**											
	Displac	**Mortality**		**No buffer**						**2km buffer**					
		Breeding	Non-breeding	Breeding		Non-breeding		Total		Breeding		Non-breeding		Total	
Scoping	60%	3 & 5%	n/a	62	102	n/a	n/a	62	102	82	136	n/a	n/a	**82**	**136**
Developer	50%	1%	n/a	17		n/a		17		23		n/a		23	

Table 8: Comparison of annual predicted mortalities arising from displacement using the scoping and developer approach for Puffin

Summary of impacts - project in isolation

Black-legged kittiwake

3.26 Within the range of likely mortalities derived using the methods advocated by NatureScot marine Scotland Science and RSPB Scotland during scoping, the impacts arising from collision and distributional change associated with Berwick Bank Offshore Wind Farm are predicted to result in the annual population growth rate of kittiwake at the **Forth Island SPA** declining, with a ratio of impacted to unimpacted population growth rate of between 0.996 and 0.997. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **86.9 and 89.0%** of what it would have been in the absence of the development.[52]

[52] All these figures are taken from Table 3.3. in the Applicant's Appendix 11.6: Ornithology Population Viability Analysis Technical Report

3.27 Within the range of likely mortalities derived using the methods advocated by NatureScot marine Scotland Science and RSPB Scotland during scoping, the impacts arising from collision and distributional change associated with Berwick Bank Offshore Wind Farm are predicted to result in the annual population growth rate of kittiwake at the **Fowlsheugh SPA** declining, with a ratio of impacted to unimpacted population growth rate of between 0.996 and 0.997. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **87.2 and 89.2%** of what it would have been in the absence of the development.

3.28 Within the range of likely mortalities derived using the methods advocated by NatureScot marine Scotland Science and RSPB Scotland during scoping, the impacts arising from collision and distributional change associated with Berwick Bank Offshore Wind Farm are predicted to result in the annual population growth rate of kittiwake at the **St. Abbs to Fast Castle SPA** declining, with a ratio of impacted to unimpacted population growth rate of between 0.973 and 0.977. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **37.5 and 43.8%** of what it would have been in the absence of the development.

3.29 The populations of other SPA are also predicted to be impacted (see Table 3.3 in the Applicants Offshore Environmental Impact Assessment, Appendix 11.6: Ornithology Population Viability Analysis Technical Report).

Common guillemot

3.30 Within the range of likely mortalities derived using the methods advocated by NatureScot Marine Scotland Science and RSPB Scotland during scoping, the impacts arising from distributional change associated with Berwick Bank Offshore Wind Farm are predicted to result in the annual population growth rate of guillemot at the **Forth Island SPA** declining, with a ratio of impacted to unimpacted population growth rate of between 0.994 and 0.997. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **80.4 and 89.5%** of what it would have been in the absence of the development.

3.31 Within the range of likely mortalities derived using the methods advocated by NatureScot marine Scotland Science and the RSPB during scoping, the impacts arising from distributional change associated with Berwick Bank Offshore Wind Farm are predicted to result in the annual population growth rate of guillemot at the **Fowlsheugh SPA** declining, with a ratio of impacted to unimpacted population growth rate of between 0.994 and 0.997. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **80.5 and 88.7%** of what it would have been in the absence of the development.

3.32 Within the range of likely mortalities derived using the methods advocated by NatureScot marine Scotland Science and the RSPB during scoping, the impacts arising from distributional change associated with Berwick Bank Offshore Wind Farm are predicted to result in the annual population growth rate of guillemot at the **St. Abbs to Fast Castle SPA** declining, with a ratio of impacted to unimpacted population growth rate of between 0.989 and 0.994. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **67.4 and 80.9%** of what it would have been in the absence of the development.

3.33 The populations of other SPA are also predicted to be impacted (see Table 3.3 in the Applicants Offshore Environmental Impact Assessment, Appendix 11.6: Ornithology Population Viability Analysis Technical Report).

Razorbill

3.34 Within the range of likely mortalities derived using the methods advocated by NatureScot marine Scotland Science and the RSPB during scoping, the impacts arising from distributional change associated with Berwick Bank Offshore Wind Farm are predicted to result in the annual population growth rate of razorbill at the **Forth Island SPA** declining, with a ratio of impacted to unimpacted population growth rate of between 0.997 and 0.998. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **90.5 and 94.6%** of what it would have been in the absence of the development.

3.35 Within the range of likely mortalities derived using the methods advocated by NatureScot marine Scotland Science and the RSPB during scoping, the impacts arising from distributional change associated with Berwick Bank Offshore Wind Farm are predicted to result in the annual population growth rate of razorbill at the **Fowlsheugh SPA** declining, with a ratio of impacted to unimpacted population growth rate of 0.999. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **94.8 and 97.1%** of what it would have been in the absence of the development.

3.36 Within the range of likely mortalities derived using the methods advocated by NatureScot marine Scotland Science and the RSPB during scoping, the impacts arising from distributional change associated with Berwick Bank Offshore Wind Farm are predicted to result in the annual population growth rate of razorbill at the **St. Abbs to Fast Castle** SPA declining, with a ratio of impacted to unimpacted population growth rate of between 0.996 and 0.998. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **85.9 and 91.6%** of what it would have been in the absence of the development.

3.37 The populations of other SPA are also predicted to be impacted (see Table 3.3 in the Applicants Offshore Environmental Impact Assessment, Appendix 11.6: Ornithology Population Viability Analysis Technical Report).

Atlantic puffin

3.38 Within the range of likely mortalities derived using the methods advocated by NatureScot marine Scotland Science and the RSPB during scoping, the impacts arising from distributional change associated with Berwick Bank Offshore Wind Farm are predicted to result in the population of puffin at the **Forth Island SPA** declining. After the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **98.6 and 99.1%** of what it would have been in the absence of the development.

3.39 The populations of other SPA are also predicted to be impacted (see Table 3.3 in the Applicants Offshore Environmental Impact Assessment, Appendix 11.6: Ornithology Population Viability Analysis Technical Report).

Gannet

3.40 Within the range of likely mortalities derived using the methods advocated by NatureScot marine Scotland Science and the RSPB during scoping, the impacts arising from collision and distributional change associated with Berwick Bank Offshore Wind Farm are predicted to result in the annual population growth rate of gannet at the **Forth Islands SPA** declining with a ratio of impacted to unimpacted population growth rate of 0.999. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **95.7 and 96.8%** of what it would have been in the absence of the development.

3.41 The populations of other SPA are also predicted to be impacted (see Table 3.3 in the Applicants Offshore Environmental Impact Assessment, Appendix 11.6: Ornithology Population Viability Analysis Technical Report).

Summary of impacts, in combination with other offshore wind farms

Black-legged kittiwake

3.42 Within the range of likely mortalities derived using the methods advocated by NatureScot, Marine Scotland Science and the RSPB during scoping, the impacts arising from collision and distributional change associated with Berwick Bank Offshore Wind Farm in combination with other North Sea wind farms are predicted to result in the annual population growth rate of kittiwake at the **Forth Islands SPA** declining with a ratio of impacted to unimpacted population growth rate of between 0.994 and 0.992. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **79.4 and 73.7%** of what it would have been in the absence of the development.

3.43 Within the range of likely mortalities derived using the methods advocated by NatureScot, Marine Scotland Science and the RSPB during scoping, the impacts arising from collision and distributional change associated with Berwick Bank Offshore Wind Farm in combination with other North Sea wind farms are predicted to result in the annual population growth rate of kittiwake at the **Fowlsheugh SPA** declining with a ratio of impacted to unimpacted population growth rate of between 0.994 and 0.992. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **80.3 and 75.8%** of what it would have been in the absence of the development.

3.44 Within the range of likely mortalities derived using the methods advocated by NatureScot, Marine Scotland Science and the RSPB during scoping, the impacts arising from collision and distributional change associated with Berwick Bank Offshore Wind Farm in combination with other North Sea wind farms are predicted to result in the annual population growth rate of kittiwake at the **St. Abbs to Fast Castle SPA** declining with a ratio of impacted to unimpacted population growth rate of between 0.976 and 0.971. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **41.0 and 34.1%** of what it would have been in the absence of the development.

3.45 Within the range of likely mortalities derived using the methods advocated by NatureScot, Marine Scotland Science and the RSPB during scoping, the impacts arising from collision and distributional change associated with Berwick Bank Offshore Wind Farm in combination with other North Sea wind farms are predicted to result in the annual population growth rate of kittiwake at the **Buchan**

Ness to Colliston Coast SPA declining with a ratio of impacted to unimpacted population growth rate of between 0.996 and 0.997. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **85.8 and 88.3%** of what it would have been in the absence of the development.

3.46 Within the range of likely mortalities derived using the methods advocated by NatureScot, Marine Scotland Science and the RSPB during scoping, the impacts arising from collision and distributional change associated with Berwick Bank Offshore Wind Farm in combination with other North Sea wind farms are predicted to result in the annual population growth rate of kittiwake at the **Troup, Pennan and Lion's Head SPA** declining with a ratio of impacted to unimpacted population growth rate of between 0.997 and 0.996. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **89.4 and 85.9%** of what it would have been in the absence of the development.

3.47 Within the range of likely mortalities derived using the methods advocated by NatureScot, Marine Scotland Science and the RSPB during scoping, the impacts arising from collision and distributional change associated with Berwick Bank Offshore Wind Farm in combination with other North Sea wind farms are predicted to result in the annual population growth rate of kittiwake at the **East Caithness Cliffs SPA** declining with a ratio of impacted to unimpacted population growth rate of between 0.995 and 0.993. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **83.4 and 77.7%** of what it would have been in the absence of the development.

3.48 Within the range of likely mortalities derived using the methods advocated by NatureScot, Marine Scotland Science and the RSPB during scoping, the impacts arising from collision and distributional change associated with Berwick Bank Offshore Wind Farm in combination with other North Sea wind farms are predicted to result in the annual population growth rate of kittiwake at the **North Caithness Cliffs SPA** declining with a ratio of impacted to unimpacted population growth rate of between 0.994 and 0.992. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **81.1 and 75.9%** of what it would have been in the absence of the development.

3.49 Within the range of likely mortalities derived using the methods advocated by NatureScot, Marine Scotland Science and the RSPB during scoping, the impacts arising from collision and distributional change associated with Berwick Bank Offshore Wind Farm in combination with other North Sea wind farms are predicted to result in the annual population growth rate of kittiwake at the **West Westray SPA** declining with a ratio of impacted to unimpacted population growth rate of between 0.989 and 0.986. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **67.7 and 59.9%** of what it would have been in the absence of the development.

3.50 The populations of other SPA are also predicted to be impacted (see Table 3.3 in the Applicants Offshore Environmental Impact Assessment, Appendix 11.6: Ornithology Population Viability Analysis Technical Report).

Common guillemot

3.51 Within the range of likely mortalities derived using the methods advocated by NatureScot, Marine Scotland Science and the RSPB during scoping, the impacts arising from distributional change

associated with Berwick Bank Offshore Wind Farm in combination with other North Sea wind farms are predicted to result in the annual population growth rate of guillemot at the **Forth Islands SPA** declining with a ratio of impacted to unimpacted population growth rate of between 0.993 and 0.987. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **61.8 and 78.4%** of what it would have been in the absence of the development.

3.52 Within the range of likely mortalities derived using the methods advocated by NatureScot, Marine Scotland Science and the RSPB during scoping, the impacts arising from distributional change associated with Berwick Bank Offshore Wind Farm in combination with other North Sea wind farms are predicted to result in the annual population growth rate of guillemot at the **St. Abbs to Fast Castle SPA** declining with a ratio of impacted to unimpacted population growth rate of between 0.987 and 0.993. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **62.2 and 77.6%** of what it would have been in the absence of the development.

3.53 Within the range of likely mortalities derived using the methods advocated by NatureScot, Marine Scotland Science and the RSPB during scoping, the impacts arising from distributional change associated with Berwick Bank Offshore Wind Farm in combination with other North Sea wind farms are predicted to result in the annual population growth rate of guillemot at the **Fowlsheugh SPA** declining with a ratio of impacted to unimpacted population growth rate of between 0.990 and 0.995. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **69.5 and 82.2%** of what it would have been in the absence of the development.

3.54 The populations of other SPA are also predicted to be impacted (see Table 3.3 in the Applicants Offshore Environmental Impact Assessment, Appendix 11.6: Ornithology Population Viability Analysis Technical Report).

Razorbill

3.55 Within the range of likely mortalities derived using the methods advocated by NatureScot, Marine Scotland Science and the RSPB during scoping, the impacts arising from distributional change associated with Berwick Bank Offshore Wind Farm in combination with other North Sea wind farms are predicted to result in the annual population growth rate of razorbill at the **Forth Islands SPA** declining with a ratio of impacted to unimpacted population growth rate of between 0.987 and 0.993. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **62.7 and 77.5%** of what it would have been in the absence of the development.

3.56 Within the range of likely mortalities derived using the methods advocated by NatureScot, Marine Scotland Science and the RSPB during scoping, the impacts arising from distributional change associated with Berwick Bank Offshore Wind Farm in combination with other North Sea wind farms are predicted to result in the annual population growth rate of razorbill at the **St. Abbs to Fast Castle SPA** declining with a ratio of impacted to unimpacted population growth rate of between 0.994 and 0.997. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **79.4 and 88.9%** of what it would have been in the absence of the development.

3.57 Within the range of likely mortalities derived using the methods advocated by NatureScot, Marine Scotland Science and the RSPB during scoping, the impacts arising from distributional change associated with Berwick Bank Offshore Wind Farm in combination with other North Sea wind farms are predicted to result in the annual population growth rate of razorbill at the **Fowlsheugh SPA** declining with a ratio of impacted to unimpacted population growth rate of between 0.993 and 0.996. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **77.8 and 87.3%** of what it would have been in the absence of the development.

3.58 The populations of other SPA are also predicted to be impacted (see Table 3.3 in the Applicants Offshore Environmental Impact Assessment, Appendix 11.6: Ornithology Population Viability Analysis Technical Report).

Atlantic puffin

3.59 Within the range of likely mortalities derived using the methods advocated by NatureScot, Marine Scotland Science and the RSPB during scoping, the impacts arising from distributional change associated with Berwick Bank Offshore Wind Farm in combination with other North Sea wind farms are predicted to result in the annual population growth rate of puffin at the **Forth Islands SPA** declining with a ratio of impacted to unimpacted population growth rate of between 0.996 and 0.998. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **88.0 and 92.6%** of what it would have been in the absence of the development.

3.60 Within the range of likely mortalities derived using the methods advocated by NatureScot, Marine Scotland Science and the RSPB during scoping, the impacts arising from distributional change associated with Berwick Bank Offshore Wind Farm in combination with other North Sea wind farms are predicted to result in the annual population growth rate of puffin at the **North Caithness Cliffs SPA** declining with a ratio of impacted to unimpacted population growth rate of between 0.979 and 0.988. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **47.1 and 63.8%** of what it would have been in the absence of the development.

3.61 The populations of other SPA are also predicted to be impacted (see Table 3.3 in the Applicants Offshore Environmental Impact Assessment, Appendix 11.6: Ornithology Population Viability Analysis Technical Report).

Gannet

3.62 Within the range of likely mortalities derived using the methods advocated by NatureScot marine Scotland Science and the RSPB during scoping, the impacts arising from collision and distributional change associated with Berwick Bank Offshore Wind Farm in combination with other North Sea wind farms between 0.994 and 0.995. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **80.0 and 84.8%** of what it would have been in the absence of the development**.**

3.63 Within the range of likely mortalities derived using the methods advocated by NatureScot, Marine Scotland Science and the RSPB during scoping, the impacts arising from collision and distributional change associated with Berwick Bank Offshore Wind Farm in combination with other North Sea

wind farms are predicted to result in the annual population growth rate of gannet at the **Hermaness, Saxa Vord and Valla Field SPA** declining with a ratio of impacted to unimpacted population growth rate of 0.998. This means that after the 35-year lifetime of Berwick Bank Offshore Wind Farm, the population size of the SPA is expected to be between **92.0 and 94.1% and** of what it would have been in the absence of the development.

3.64 The populations of other SPA are also predicted to be impacted (see Table 3.3 in the Applicants Offshore Environmental Impact Assessment, Appendix 11.6: Ornithology Population Viability Analysis Technical Report).

Adverse Effect on Site Integrity (AEoSI)

3.65 An AEoSI means potential effects from the development that are also likely to prevent the achievement of the conservation objectives and cannot be mitigated. These international sites are the most important sites for wildlife. They are legally required to be conserved and if necessary restored to favourable conservation status.

3.66 RSPB Scotland welcome recognition by the Applicant that potential for AEoSI cannot be excluded for four different species from eight different SPAs. Based on our analysis above however and mindful of the state of Scottish seabirds, we consider this conclusion applies also to gannet at the Forth Islands SPA and, in combination with other development for kittiwake at North Caithness Cliffs SPA, West Westray SPA, for puffin at North Caithness Cliffs SPA and for gannet at Forth Islands SPA and Hermaness, Saxa Vord and Valla Field SPA.

3.67 In summary, for the application in isolation, RSPB Scotland consider potential AEoSI cannot be excluded with regard to the following SPAs species in Scotland:

3.67.1 Kittiwake at Forth Islands SPA, Fowlsheugh SPA and St Abbs to Fast Castle SPA

3.67.2 Common Guillemot at Forth Islands SPA, Fowlsheugh SPA and St Abbs to Fast Castle SPA

3.67.3 Razorbill at Forth Islands SPA

3.67.4 Atlantic Puffin at Forth Islands SPA, and

3.67.5 Northern Gannet at Forth Islands SPA

3.68 In combination with other developments in the North Seam, RSPB Scotland consider potential AEoSI cannot be excluded with regard to the following SPAs:

3.68.1 Kittiwake at Forth Islands SPA, Fowlsheugh SPA, St Abbs to Fast Castle SPA, Troup, Pennan and Lion's Head SPA, East Caithness Cliffs SPA, North Caithness Cliffs SPA, West Westray SPA, Buchan Ness to Collision Coast SPA, Flamborough and Filey Coast SPA and Farne Islands SPA

3.68.2 Common Guillemot at Forth Islands SPA, Fowlsheugh SPA and St Abbs to Fast Castle SPA

3.68.3 Razorbill at Forth Islands SPA, Fowlsheugh and St Abbs to Fast Castle SPA

3.68.4 Atlantic Puffin at Forth Islands SPA and North Caithness Cliffs SPA, and

3.68.5 Northern Gannet at Forth Islands SPA and Hermaness, Saxa Vord and Valla Field SPA.

3.69 In addition and as acknowledged by the Applicant, given the possibility of adverse effects on these breeding seabird SPAs, potential adverse effects cannot be excluded for the Outer Firth of Forth and St. Andrews Bay Complex SPA.

EIA Impact Significance

3.70 RSPB Scotland have concerns regard the conclusions of the EIA, especially for gannet and kittiwake in isolation. As set out in EIA Report Methodology the significance of impacts is assessed using a matrix of magnitude of impact and sensitivity of receptor (see Table 6.9 in Chapter 6 of the EIA Report).

3.71 For gannet, and in part due to the impact of HPAI, we believe the sensitivity to the impact type has been underestimated. Table 11.16 in Chapter 11 of the EIA Report contains definition of terms relating to the sensitivity of the report. Gannet behaviour makes them highly vulnerable to collision and their population has limited potential for recovery. Their sensitivity would therefore be better described as 'high' rather than 'medium'

3.72 For both gannet and kittiwake, we consider the sensitivity of the receptor to collision risk has been underestimated. Table 11.15 in Chapter 11 of the EIA Report contains definition of terms relating to the magnitude of the impact. The definition for each magnitude of impact comprises multiple aspects, including time to recover from the impact and whether the change would impact an interest feature of a specific protected site. It is not clear all these aspects have been considered by the Applicant. The magnitude of impact from collision risk to Gannet for example has been categorised as 'low'. As outlined in Section 2 above, the time to reach breeding maturity means recovery from impacts would take in excess of five years. Impacts could also alter the integrity of a SPA. Similarly the magnitude of impact from collision for kittiwake categorised as 'low'. Again, the time to reach breeding maturity means recovery from impacts would be take excess of five years. The impacts would also alter the integrity of a protected site – notable St Abbs to Fast Castle SPA.

3.73 Overall, for both species, we disagree with the conclusion of the EIA and consider the collision risk impact from the application in isolation would be greater than 'minor' or 'minor to moderate adverse' and is significant.

Section summary

3.74 The application would result in large and significant impacts to kittiwake, guillemot, razorbill, puffin and gannet. This is in addition to the background population declines and the very recent impacts of HPAI.

3.75 Within the range of likely mortalities derived using the methods advocated by NatureScot Marine Scotland Science and the RSPB during scoping, the application cannot be excluded from having AEoSI for five different species from twelve SPAs.

3.76 RSPB Scotland recognise the Applicant has sought to avoid and mitigate impacts of the development as the design of the application has progressed. They have reduced the site area, moved 2km away from the boundary of the Outer Firth of Forth and St Andrews Bay Complex SPA and increased the minimum air gap (the distance between Lowest Astronomical tide and lower

blade tip hight). This are all welcome but in accordance with the mitigation hierarchy, avoiding these impacts by locating the development elsewhere must be considered.

3.77 The Habitats Regulations are clear that a project that would result in AeoSI on European protected sites cannot be permitted unless it can be demonstrated there are no lesser damaging alternative solutions, there are imperative reasons of overriding public interest (IROPI) for the project to ahead and compensation to maintain the integrity of the sites network can be secured. The Applicant has put forward a derogation case and RSPB Scotland's review of this is provided in Section 5.

4. Sandeel assessment

Introduction

4.1 RSPB Scotland are concerned that not enough consideration has been given to the uncertainties associated with the development's impact on sandeel and consequently, seabirds. This is important for understanding the impact of the development on protected features and for assessing the effectiveness of the proposed compensation measures.

4.2 Notwithstanding the developer's efforts to change the boundary to reduce potential impacts on birds and benthic ecology, the impact of the development on sandeels is a particular concern given the array (including the inter-array cables and scour protection material) will still be located directly on top of an area of predicted high sandeel abundance and important spawning and nursery areas.

The vulnerability of sandeels and the SA4 stock

4.3 Since 2011 the International Council for the Exploration of the Sea (ICES) has provided advice on based on sandeel stock units. The largest of the sandeel stocks in Scottish waters is sandeel area 4 (SA4) and is the only one in Scottish waters with an active fishery. All sandeel populations are vulnerable to local depletion, which even in a single year, could affect their availability to predators, such as seabirds. Consequently there is a need for precaution when considering impacts on these Priority Marine Features[53](PMF).

4.4 Furthermore, the SA4 stock is in a concerning state with spawning stock biomass (SSB) generally lower than historical levels. The SSB mid-point has repeatedly fallen below B_{pa}, the precautionary reference point for sandeel stock biomass. In the last five years it has been below B_{pa} three times (in 2020, 2022 and 2023) and was at B_{pa} in 2019 [54]. There is considerable variability in SSB which makes it difficult to make a generalisation about future trends. In 2023, the SSB midpoint for SA4 is estimated to be lower than B_{pa} making the stock close to, but just outside of safe biological limits for a targeted fishery alone. This assessment emphasises the need for action to rebuild the stock. Notwithstanding the RSPB's existing concerns as to how the ICES models account for predator needs and areas closed to fishing as set out in section 6 of Dunn (2021), we also note uncertainties in the data collected that informs ICES stock assessments in SA4 which also add the need for further precaution.

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53 https://marine.gov.scot/sma/assessment/case-study-sandeels-scottish-waters

54 ICES. 2023. *Sandeel (Ammodytes spp.) in divisions 4.a and 4.b, Sandeel Area 4 (northern and central North Sea). In Report of the ICES Advisory Committee, 2023*. ICES Advice 2023, san.sa.4. https://doi.org/10.17895/ices.advice.21815193

4.5 Beyond ICES assessments, further studies evidence concerns around the vulnerability of the sandeel stock in SA4. This includes MacDonald et al. (2019)[55] who conclude that sandeel abundance in the north-western North Sea has undergone a sustained decline since 2001 despite the absence of a fishery (in the northeast UK closed area). Much of the data for this study came from the Firth of Forth area – where there proposed windfarm would be located. In addition, Wanless et al. (2004)[56] also found the size and nutritional quality of fish from the Firth of Forth has reduced, equating to a 40% decline in energy content. This decline in size-at-age is likely to have major demographic consequences for seabirds while also making the sandeel aggregation more vulnerable to collapse due to impacts on reproduction.

4.6 An assessment of the north-western North Sea sandeel fishery by Marine Scotland (2019)[57] also concludes that owing to a range of non-fishery drivers thought likely to be causing the long-term decline in sandeel abundance in the area 'Simply closing offshore areas close to top predator colonies may not be sufficient to guarantee the long-term prospects of predators at these locations'. This weakens the argument for a fisheries closure in SA4 as a guaranteed compensatory measure likely to benefit the biomass of sandeels and their availability to sandeel-dependent seabirds but adds the need for precaution against adding multiple pressures on the area, whether from a fishery outside the closed area (as is currently the case) or wind farm developments (additional pressure).

4.7 The main threat sandeels face is from climate change causing warming sea temperatures, altering density stratification and consequent mix and seasonal timing of the zooplankton which fuel the growth and survival of sandeels and their larvae[58]. As such, warming sea temperatures will continue to impact sandeel abundance, quality, and their availability to predators even with the removal of fishing pressure. Not only is stratification changed by increasing sea temperatures, it is also altered by the presence of wind turbines[59]. This additional pressure from offshore wind, in combination with climate mediated changes is likely to reduce the resilience of sandeel populations further. Furthermore, changes in the vertical distribution of sandeels caused either by climate change or the presence of turbines, will change their availability to foraging seabirds. This will be of particular importance to kittiwake as they are restricted to surface feeding and are more reliant of sandeels than other seabirds[60].

4.8 Sandeels are restricted by their habitat requirements and their limited ability to disperse and find new sites. They cannot easily move to avoid pressures and so are particularly vulnerable to disturbance and, loss of habitat associated with development, as well as climate change. Sandeels

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55 MacDonald A, Speirs DC, Greenstreet SPR, Boulcott P and Heath MR. 2019. *Trends in Sandeel Growth and Abundance off the East Coast of Scotland*. Front. Mar. Sci. 6:201. https://doi.org/10.3389/fmars.2019.00201

56 Wanless, S., Wright, P.J., Harris, M.P. and Elston, D.A.. 2004. *Evidence for decrease in size of Lesser Sandeels Ammodytes marinus in a North Sea aggregation over a 30-yr period*. Marine Ecology Progress Series. 279. 237–246. 10.3354/meps279237

57 Marine Scotland (2019) Monitoring the Consequences of the Northwestern North Sea Sandeel Fishery Closure

58 Sharples, J., Ross, O. N., Scott, B. E., Greenstreet, S. P., & Fraser, H. 2006. *Inter-annual variability in the timing of stratification and the spring bloom in the North-western North Sea.* Continental Shelf Research, 26(6), 733-751.

59 Dorrell, R.M., Lloyd, C.J., Lincoln, B.J., Rippeth, T.P., Taylor, J.R., Caulfield, C.C.P., Sharples, J., Polton, J.A., Scannell, B.D., Greaves, D.M. and Hall, R.A., 2022. *Anthropogenic mixing in seasonally stratified shelf seas by offshore wind farm infrastructure.* Frontiers in Marine Science, *9*, p.124.

60 Furness, R. W., & Tasker, M. L. 2000. *Seabird-fishery interactions: quantifying the sensitivity of seabirds to reductions in sandeel abundance, and identification of key areas for sensitive seabirds in the North Sea*. Marine Ecology Progress Series, 202, 253-264.

may also be more sensitive to local environmental conditions at different times of their lifecycle for example when the juveniles settle and overwinter for months, buried in sand bank[61]s.

4.9 The vulnerability of sandeel means the risks from disturbance, displacement, habitat loss/change must be fully explored to understand the potential changes and impacts. As shown by scientific literature and the Applicant, sandeels have specific habitat requirements including preferred grain size and composition so changes and disturbance to habitats need careful consideration and assessment to fully understand the true impacts. This includes whether the development itself, as well as sedimentary plumes from construction and installation for example might fundamentally change the habitat available (even if only temporary, this could have consequences for sandeels). As stated by NatureScot:

> *'The physical disruption or removal of their sediment habitat is also a particular threat for sandeels, which can be brought about by development upon or nearby their sediment habitat and/or activities which disrupt local water currents. Very little is known about the recovery of sandeel in response to the threats mentioned above.'*[62]

Impacts to sandeel from offshore wind development

4.10 A baseline and EIA have been provided for fish and shellfish which includes sandeel as an Important Ecological Feature (IEF). We have not however been able to locate further analysis of how the impacts on IEFs, particularly sandeel and consequently foraging seabirds, will impact on the predicted benefits of sandeel fisheries management and therefore, the success of the fisheries management compensation measure.

4.11 The assessment of likely significant environmental effects, mitigation and monitoring is aggregated to broad receptor level, rather than an individual IEF level. Summary information at a feature level is required to reduce ambiguity and fully understand the potential impacts of all the additional pressures on sandeel and other forage fish to understand the true effect of the development on individual features.

4.12 From reviewing the evidence in the Baltic Sea and Beatrice Offshore Windfarm (BOWL) in the Moray Firth, the Applicant suggests the application would not result in significant adverse effects on sandeel populations and that recovery of populations occurs through the recolonisation of suitable sandy substrates from unimpacted habitats. Other publications, such as the review of pressures on forage fish by van der Kooij et al. (2021)[63], or research by Perrow et al (2011)[64] , Daewel et al. (2022) [65] and Dorrel et al., (2022) [66] also outline the effects of the renewable energy industry on forage fish.

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61 Case Study: Sandeels in Scottish waters | Scotland's Marine Assessment 2020

62 NatureScot (2023) Sandeel Available at: https://www.nature.scot/plants-animals-and-fungi/fish/sea-fish/sandeel

63 van der Kooij, J., Campanella, F., Rodríguez Climent, S., (2021) Pressures on forage fish in Welsh Waters. Cefas Project Report for RSPB, 35 pp

64 Perrow, M.R.,Gilroy, J.J., Skeate, E.R., and Tomlinson, M.L. 2011. *Effects of the construction of Scroby Sands offshore wind farm on the prey base of Little tern Sternula albifrons at its most important UK colony.* Marine Pollution Bulletin, 62(8) pp 1661-1670 https://doi.org/10.1016/j.marpolbul.2011.06.010

65 Daewel, U., Akhtar, N., Christiansen, N. and Schrum. C. 2022. *Offshore wind farms are projected to impact primary production and bottom water deoxygenation in the North Sea*. Commun Earth Environ 3 (292) https://doi.org/10.1038/s43247-022-00625-0

66 Dorrell, R.M., Lloyd, C.J., Lincoln, B.J., Rippeth, T.P., Taylor, J.R., Caulfield, C.C.P., Sharples, J., Polton, J.A., Scannell, B.D., Greaves, D.M. and Hall, R.A., 2022. *Anthropogenic mixing in seasonally stratified shelf seas by offshore wind farm infrastructure.* Frontiers in Marine Science, 9, p.124.

These include direct impacts such as habitat loss and indirect pressures e.g. through changes in stratification or other hydrographic processes with consequences for primary productivity and bottom water deoxygenation) all of which emphasise potential risks for these species, and consequently seabirds as well as other species. These do not appear to have been reviewed.

4.13 We also note the conclusions of the work at Horns Rev I in Denmark by van Deurs *et al.* (2012)[67] appear to be driven by the abundance of the Greater Sandeel (Hyperoplus lanceolatus). The authors suggest the same conclusions might not be applicable where there are higher densities of Raitt's sandeel (Ammodytes marinus). It is the Lesser Sandeel and Raitt's Sandeel which are listed as PMF of the development area.

4.14 Neither the BOWL[68],[69], work nor the work at Horns Rev I by Van Deyrs *et al* (2012) assess sandeel populations within the turbine array annually. This makes it very difficult to ascertain at what point the sandeel might recover.

4.15 Overall, while the general impacts of construction, operation and decommissioning of the development could be short term (in the context of the project lifecycle) as suggested by the Applicant, there are still a large number of unknowns and the Applicant has not considered a number of impact pathways, as described above. It is therefore important not to underestimate what could be potentially significant impacts on short-lived, already vulnerable populations and the subsequent consequences for dependent predators.

Summary

4.16 The existing long-term decline in sandeel abundance size and quality are important factors that urge a precautionary approach to both the management of the fishery, and any development that might exacerbate pressures on sandeels and cause further declines in this area.

4.17 While RSPB's concerns are focused on sandeels we recognise there will also be impacts on other forage fish (and their spawning areas) such as herring, sprat, mackerel, cod (juveniles of which are forage fish) associated with the application. These species, particularly sprat are important prey for all the seabirds in the area[70] This will be a concern not just to other industries like commercial fisheries but to the health wider marine ecosystem and seabirds, especially given that food webs are also not achieving GES[71]. Proposals which further impacts the ability of the UK to achieve GES should be considered carefully.

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67 van Deurs, M.; Grome, T.; Kaspersen, M.; Jensen, H.; Stenberg, C.; Sørensen, J.; Støttrup, J.; Warnar, T.; Mosegaard, H. 2012. *Short- and Long-Term Effects of an Offshore Wind Farm on Three Species of Sandeel and their Sand Habitat.* Marine Ecology Progress Series, 458, 169-180. https://doi.org/10.3354/meps09736

68 BOWL (2014) *Sandeel Survey Results -Technical Report* (Document Reference: LF000005-REP-095)

69 BOWL (2021) *Post-construction Sandeel Survey -Technical Report* (Document Reference: REP-BE-00723)

70 Wanless, S., Harris, M. P., Newell, M. A., Speakman, J. R., & Daunt, F. 2018. *Community-wide decline in the occurrence of lesser sandeels Ammodytes marinus in seabird chick diets at a North Sea colony.* Marine Ecology Progress Series, *600*, 193-206.

71 DEFRA (2019) Marine Strategy Part one. (online) (accessed 21.03.2023)

5. RSPB Scotland's assessment of derogation case

Introduction

5.1 As acknowledged by the Applicant, the impacts of the development are large[72]. Both individually and in combination with other developments, it is predicted to result in AeoSI. This means the magnitude and severity of impacts from the development is of such significance it could prevent the achievement of the conservation objectives and the preservation of the SPA for the conservation of its species is also in question. These international sites are the most important sites for wildlife and are legally required to be conserved and if necessary restored to favourable conservation status. There is also an obligation to assesses any applications which may harm them and ensure protection requirements are full complied with in any application processes.

5.2 As mentioned above part of those legal requirements are the Habitats Regulations, which only allows projects to be permitted if:

5.2.1 There are no feasible alternative solutions to the project which are less harmful;

5.2.2 There are imperative reasons of overriding public interest (IROPI) for the project to proceed; and

5.2.3 Any necessary compensatory measures are secured to ensure that the overall coherence of the UK/National Site Network is protected and to ensure the objectives for that Network are achieved[73].

5.3 These requirements need to be considered in order but also together; the IROPI needs to be identified to be able to consider possible alternative solutions. If those tests can be passed i.e. there are no less harmful alternative solutions and there is IROPI, compensation will need to be identified and information provide to demonstrate that it is certain, ecologically, legally and financially, that compensation measures can be secured. **All three must be satisfied before a project with potential adverse effects on site integrity may be consented.**

Alternative solutions

5.4 RSPB Scotland do not agree with the Applicant's proposed objectives and do not consider the Applicant has adequately demonstrated that development of Scotwind sites would not constitute feasible alternative solutions.

5.5 The requirement at this stage of the Habitats Regulation assessment is to establish whether there are any less harmful alternative solutions to the project.

5.6 There are many previous decisions and guidance on what falls within the scope of a search for alternative solutions, but it is broadly agreed that for a:

5.6.1 Potential alternative solution must achieve the core objectives of the application; and

5.6.2 Potential alternative solutions must be feasible.

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[72] See for example tables 1 and 2 of the Derogation Case Report to Inform Appropriate Assessment

[73] Please see for example regulation 16A Terrestrial Habitats Regulations

5.7 For all feasible alternative solutions that meet the project aims, the relative impact on conservation objectives, integrity, and contribution to the overall coherence of the UK Sites Network have to be analysed. The relative financial costs of alternative solutions can be considered but an alternative cannot be dismissed from being considered on the grounds it would cost too much.

5.8 Although not consenting the application would not meet the core objectives, it is the legally required outcome should the requirements of derogation not be met. It therefore cannot be discounted as an outcome.

Objectives

5.9 It is ultimately for the appropriate authority to decide which application objectives are relevant for the consideration of alternative solutions.

5.10 RSPB Scotland consider there are several flaws in the objectives currently proposed by the Applicant and believe they should be refined before being used as the basis to consider alternative solutions against.

5.11 The objectives put forward by the Applicant are:

- 5.11.1 Develop a large-scale Offshore Wind Farm to generate low carbon electricity to support Scottish and UK decarbonisation targets;
- 5.11.2 Maximise generation and export capacity within the constraints of available UK sites;
- 5.11.3 Make efficient use of very limited seabed available for fixed foundation OWFs in Scottish waters;
- 5.11.4 Deliver low carbon electricity at the lowest possible cost to the UK consumer;
- 5.11.5 Deliver a significant volume of new low carbon electricity generation as soon as possible, with a substantial contribution to the UK national grid before 2030; and
- 5.11.6 Helping ensure UK energy supply security from the mid-2020s through increasing the proportion of electricity coming from domestic renewables and thus reducing exposure to volatile fossil fuel markets.

5.12 RSPB Scotland agree with the overall aim of objective one. Scotland and the rest of the UK are seeking to move away from fossil fuel-based electricity generation in order to reduce greenhouse gas emissions and meet the legally binding climate change targets set out within the Climate Change Act 2008. Strategies published by the Scottish and UK Governments set out how these targets will be met. This includes Scotland's 2018-2032 Climate Change Plan (2020)[74], the British Energy Security Strategy (2022)[75] and Scotland's Offshore Wind Policy Statement (2020)[76]. The Scottish Government's draft Energy Strategy and Just Transition Plan (2023)[77] is also of some relevance.

5.13 We also welcome the sentiment of the fifth objective (to deliver a significant volume of new low carbon electricity generation as soon as possible, with a substantial contribution to the UK national grid before 2030). We are in a joint climate and nature emergency and decarbonisation of

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74 Securing a green recovery on a path to net zero: climate change plan 2018–2032 - update - gov.scot (www.gov.scot)
75 British energy security strategy - GOV.UK (www.gov.uk)
76 Offshore wind policy statement - gov.scot (www.gov.scot)
77 Draft Energy Strategy and Just Transition Plan - gov.scot (www.gov.scot)

electricity supply is necessary to meet the legally binding climate change targets. We presume the reference to 2030 relates to the targets set out in Scotland's Offshore Wind Policy Statement (2020) and the British Energy Security Strategy (2022). This is for 8-11 GW offshore wind capacity in Scotland and for 50 GW offshore wind capacity across the UK by 2030. This makes it very similar objective one and we suggest they are merged.

5.14 We consider objective two (maximising generation and export capacity within the constraints of UK available sites) is in essence seeking to make best use of resources. This is something to be supported as part of sustainable development and should be assessed as part of the wider application process.

5.15 In addition, it must be acknowledged that there is limited grid capacity across the UK and connections into it are scarce. In relation to onshore elements, Scottish Government has stated their position that grid capacity should not constrain renewable energy development (see NPF4 policy 11(e)). However if grid capacity (or lack of it) is not to weight against a development, it also cannot be taken as support for an application. It is also of note that if the proposed project was not to go ahead, the allocated capacity could theoretically be re-allocated to another project.

5.16 In addition we disagree with limiting the generation technology to 'fixed bottom foundations' offshore wind as set out in objective there. Fixed bottom and floating offshore windfarms are not fundamentally different forms of generation technology. We agree their construction involves different engineering and logistical challenges. But their primary purpose and means of generating electricity (from the rotation of a turbine by the wind) as well as location (offshore) remains the same. For any offshore windfarm, the construction of the attachment with the seabed (for example drilled piles or suction buckets) will most likely vary depending on sediment type. Between this point and the water surface, a fixed ridged construction may physically support the generating station. Alternatively, the generating station may be buoyant and self-supporting, removing the necessity for a fixed and ridged tether. We agree that fixed bottom foundations are an established method of constructing turbines in shallower water depths and there are consented fixed-bottom wind farms in Scottish waters. But it is technically and logistically feasible to put the same generating technology in deeper water with different foundations. Indeed, beyond cost considerations, floating offshore windfarms could be placed in shallow waters and, notwithstanding the maximum jack-up vessel size, fixed foundation turbines could be placed in deeper waters. Limiting the objectives to fixed-bottom foundations only is unjustifiably restrictive.

5.17 We disagree with the specific refence to developing a large-scale offshore wind farm in objective one. 'Large-scale' is underdefined and could refer to generation capacity, site area, or both. We suggest a more appropriate term would be 'commercial-scale' which is defined in the Sectoral Marine Plan for Offshore Wind Energy (2020)78 as capable of generating more than 100MW.

5.18 Objective four, delivering low carbon electricity at the lowest possible cost to the UK consumer, is a welcome aspiration given the high cost of living currently faced. Similarly, we welcome the sentiment of objective six (helping ensure UK energy supply security from the mid-2020s through increasing the proportion of electricity coming from domestic renewables). Yet both substantially depend on complex external factors – for example energy pricing and capacity market. A

78 Sectoral marine plan for offshore wind energy - gov.scot (www.gov.scot)

development can maximise generation and export capacity, but it cannot guarantee the export of electricity to the UK National Gird beyond securing a connection. It cannot control the weather, energy usage or grid balancing across the UK. This creates a flaw in use of these two objectives as they are outside the control and deliverability of any project.

5.19 We therefore recommend Scottish Ministers consider the alternative solutions against the following objective:

> *To aid Scotland in achieving its greenhouse gas reduction and climate change targets in accordance with the Government published strategies through the development of commercial scale offshore wind.*

Assessment of alternative solutions

5.20 The matter to establish at this stage of the Habitats Regulation assessment is whether there are any feasible alternative solutions which would achieve the same objective(s) as the proposed project and are less harmful.

5.21 Neither our recommended objective, nor those proposed by the Applicant are location specific. As such alternative solutions could be located at any appropriate location in the Scotland (or the UK). The Applicant appears also to be of this view and has investigated a number of alternative sites around the UK, including the Scotwind Sites (see paragraphs 224 to 228, page 45 of the "Derogation Case" document).

5.22 Having reviewed the information provided in the application, RSPB Scotland consider the conclusion that Scotwind sites do not constitute feasible alternatives is premature and **advise they are given further consideration**.

5.23 The rationale provided by the Applicant for dismissing the Scotwind sites as potential alternatives are summarised as:

- 5.23.1 The projects are unlikely to be generating before 2030.
- 5.23.2 There is a lack of grid connections.
- 5.23.3 There will be project attrition.
- 5.23.4 The purpose of the Scotwind is to provide additional capacity, not make up a capacity short fall from failing to deliver the remaining Crown Estate Round 3 leasing projects.
- 5.23.5 The do nothing (i.e. not deliver the proposed development) has already been ruled out as an alternative as the capacity targets for 2030 will not be met without it and Scotwind will not change that.

5.24 The first point, whether any Scotwind projects are likely to be generating before 2030, relates to the Scottish and UK Government targets of 8-11 GW and 50 GW by 2030 respectively. These in turn relate to the climate change and greenhouse gas reduction and form part of the 'decarbonisation targets' referenced in the Applicant's suggested first objective and the 'Government published strategies' referenced in the RSPB Scotland's recommended objective. It is therefore relevant to the consideration of alternatives.

5.25 The remaining four bullet points do not address whether the Scotwind Sites are feasible alternative solutions which would achieve the same objective(s) as the proposed project and are less harmful.

5.26 Having consent is essential for an offshore windfarm to operate. It is not a guarantee that it will be constructed, commissioned by a specific date, or fulfil its maximum design envelope parameters. This is applicable to all projects.

5.27 The time for construction will likely differ for each project depending on financing, size of development, construction techniques, supply chain matters, dock yard availability, jack-up vessels, weather windows and such like. All of these matters are beyond the remit and control of a decision maker. Furthermore, (and in the event the derogation tests are met) compensation measures should be in place and ecologically functional before any damage occurs. As such, they may need to be implemented several years in advance of a windfarm being constructed or becoming operational.

5.28 Taken together, it is very difficult to guarantee an offshore windfarm would be fully operational within a specified timescale at the application stage. RSPB Scotland agree that there is a higher probability that the longer before 2030 an offshore windfarm is consented the greater the chance of it being operational (or partially operational) by 2030 is. But a windfarm that does not require compensation measures and is permitted in 2026-27 could also have reasonable chance of being operational (or partially operational) by 2030. On the basis that timescales are uncertain both for Berwick Bank and Scotwind projects, we recommend limited weight is given to the argument that Scotwind projects are unlikely to be operational by 2030 and their dismissal as alternatives sites for this reason.

5.29 In regard to a lack of grid connections preventing the Scotwind projects from being considered as feasible, as set out in paragraph 5.15 above, we query whether maximising generation and export capacity should be accepted as an objective of the project. The objective appears outside the remit of the decision being undertaken and not something that can be assessed within its framework. Furthermore, if the proposed project was not to go ahead, the allocated capacity could theoretically be re-allocated to an alternative project. This is a matter for discussion with electricity grid operator. It does not preclude the Scotwind sites from aiding Scotland in achieving its greenhouse gas reduction and climate change targets in accordance with the Government published strategies through the development of a commercial scale offshore wind farm.

5.30 We do not follow the argument relating to project attrition precluding Scotwind sites. The questions being considered is whether there are any feasible alternative solutions which meet the same objective and are less harmful. Whether all Scotwind sites and the full capacity of 27.6 GW or fewer sites and a lower capacity is built is not something that can be predicted at this point in time. We only know that twenty sites have seabed agreements with Crown Estate Scotland. Whether development of these sites would be a feasible alternative which would achieve the same objective(s) as the proposed project and are less harmful has not been addressed.

5.31 We also disagree with there being a shortfall from failing to deliver round 3 projects as suggested by the Applicant in the rationale for dismissing the Scotwind sites. This infers a pre-determination of the round three projects either through the process of gaining a seabed lease or the subsequent Sectoral Marine Plan for Offshore Wind Energy where the Scotwind plan option areas were listed. A seabed lease is not the same as an energy generating consent or marine licence. Whether development of any Scotwind Site(s) would be a feasible alternative which would achieve the same objective(s) as the proposed project and are less harmful is not addressed.

5.32 In summary, the reasons for excluding the Scotwind Sites are flawed and insufficient. The Applicant has not met the requirement of demonstrating that none of the Scotwind sites would meet the objective of the application.

5.33 RSPB Scotland consider development of one or more Scotwind sites would meet the objective of aiding Scotland in achieving its greenhouse gas reduction and climate change targets in accordance with the Government published strategies through the development of a commercial scale offshore wind farm.

5.34 Crucially, and notwithstanding the above points relating to timescale, an alternative project (or projects) would not need to deliver the Berwick Bank headline capacity of 4.1GW by 2030 to have the same contribution of aiding Scotland in achieving its greenhouse gas reduction and climate change targets.

5.35 As set out in Section 3.2.3 of the Environmental Impact Assessment Report, the headline 4.1 GW capacity would only be reached through the third connection to Cambois, Northumberland which has been scheduled for early 2030s. We have been unable to locate information on the capacity split within the documents.

Using information on the permitted and operational capacity of offshore wind in Scottish waters[79] Table 9: Offshore Wind Status Summary, January 2023 comparison of UK and Scotland, from The Crown Estate[79]

5.36 , RSPB Scotland suggest that any scheme in Scottish waters with a capacity greater than to 2.1 GW would fill the capacity gap to meet the 2030 Scottish target of 8 GW. We acknowledge this is a minimum capacity requirement and indeed the larger 11GW is also not an upper limit of offshore wind development. This is why we suggest 2.1 GW or greater would be required.

5.37 The UK target of 50 GW would require 17.2 GW of offshore wind energy to be constructed in UK waters by 2030. The total capacity of developments in planning (including this application) are insufficient to meet the target. Some pipeline projects would need to be delivered pre-2030. If the proposed Berwick Bank project did not gain consent, more pipeline projects would need to be delivered pre-2030. Although it contributes to the targets, it is not the only option available.

Offshore Windfarm Status Summary	**Scotland (GW)**	**UK (E/W/S/NI) (GW)**
Fully Commissioned	1.9	13.7
Under Construction	1.6	6.7
Consented (not under construction)	2.4	12.5
Total consented/constructed	***5.9***	***32.8***
In planning	4.2	8.3
Pipeline	27.6	37.7
Total (all)	***37.7***	***78.8***
Difference 2030 target and total consented/constructed	***2.1 – 5.1***	***17.2***

Table 9: Offshore Wind Status Summary, January 2023 comparison of UK and Scotland, from The Crown Estate[79]

[79] The Crown Estate (January 2023) Project Listings

5.38 To summarise, RSPB Scotland consider that a renewable project (or projects) of equal to or greater than 2.1 GW capacity would meet the objective of aiding Scotland achieving its greenhouse gas reduction and climate change targets in accordance with the Government published strategies.

5.39 It is not beyond the bounds of possibility that one or more OWF projects with an extant seabed lease, and total capacity greater than 2.1 GW, could seek consent between now and mid-to late 2020s with the intention of being operational by 2030. Information from the Marine Scotland website indicates that two Scotwind lease sites have received scoping opinions. RSPB are also aware that aerial survey data is being collected for several other areas. As with the Berwick Bank site, development within the lease areas is acceptable in principle subject to site specific information. Information on whether they would be less harmful than the Berwick Bank development has not been provided. It is therefore inappropriate and premature to exclude Scotwind sites on the basis from the assessment of alternatives.

5.40 RSPB Scotland requests that Scottish Ministers seek NatureScot's advice as to whether, with the information currently available, it is possible to conclude that development of one or more Scotwind sites to deliver a total capacity equal to or greater than 2.1 GW would be possible and result in less potential for harm to protected sites and their species than this Application.

5.41 An absence of alternative solutions must be clearly established. RSPB Scotland do not believe this is currently possible with the information available and therefore the Application cannot be permitted in its current form.

Imperative Reasons of Overriding Public Interest (IROPI)

5.42 RSPB Scotland do not consider a lack of alternative solutions have been demonstrated. Nevertheless, as this is our only opportunity to comment on the Application, we also wanted to provide comments on IROPI.

5.43 To determine whether there are IROPI, Scottish Ministers must be satisfied that Berwick Bank offshore windfarm has public and overriding benefit which outweighs the protection of the European sites and is needed now. An assessment of IROPI requires a weighing up of those elements against the damage caused to the protected sites and species by the development under consideration.

5.44 We agree the application is consistent with UK and Scottish Governments' strategies for decarbonising electricity and agree there is an increasing demand for renewable alternatives as we move away from fossil fuels. We also agree that tackling climate change is in the long-term public interest.

5.45 The scale of impacts to be outweighed by IROPI must however be considered. We wish to remind Scottish Ministers that the impacts are large. The annual estimated morality included in the application is 1601 to 3021 for guillemot and 823.9 to 1100.9 for kittiwake. Protecting our natural environment is also in the public interest. It adds to cultural perceptions of Scotland, has economic benefit related to tourism as well as boosting wellbeing and aiding public health. For impacts of such magnitude, the IROPI case must be outstanding.

5.46 In regard to the 'imperative' element of IROPI, we are mindful that there is urgency to the renewable energy targets as part of reducing greenhouses gasses and tackling climate change. As

storing electricity in large quantities is currently difficult, and power generated from windfarms is intermittent, it is not however always possible to utilise the power generated by them. We are aware that upgrading of the electricity network and the holistic network review is an ongoing process. We are also aware that support is being given to developing energy storage facilities through policy and planning documents. These though are somewhat behind the development of windfarms. If, subject to compensation, the development is to go head, there is a real possibility that the adverse impacts may be realised in advance of the majority of benefits. We request Ministers consider whether the windfarm itself is the imperative element of meeting the electricity targets.

5.47 The Applicant has given weight to Case C-411/17 "Inter-Environnement Wallonie and Bond Beter Leefmilieu Vlaanderen" of the European Court of Justice to argue that the ensuring the security of the electricity supply constitutes IROPI[80]. The circumstances of that case are however different to this application. It concerned the "switching off" of an existing electricity supply (i.e. from nuclear powers stations that had already been operating). Not continuing to operate was considered to constitute a genuine and serious threat of disruption to energy supplies. This is not the case for the application especially when there are alternative solutions for Scotland's electricity supply as discussed above.

Compensation

5.48 It has not been demonstrated that there are no feasible alternative solutions which would achieve the same objective(s) as the proposed project and are less harmful. Until this has taken place the project cannot be permitted.

5.49 Our comments on the proposed compensation measures are provided without prejudice to this view.

Compensation principles

5.50 As set out in the European Commission's updated guidance on Article 6(4) of the Habitats Directive[81] ("the EC guidance"), compensation measures considered under the context of the habitat's regulations are independent of the project and are aimed to offset the residual negative effects of that project in order to maintain the overall coherence of the UK/National site network. They must provide continuity in the ecological processes essential to maintain the structure and functions that contribute to the European site network coherence.

5.51 Compensatory measures should be additional to actions considered as normal requirements under the Habitats Regulations and should go beyond those standard measures required for the designation, protection, and management of the protected sites.

5.52 It is vital that details and evidence are provided to enable ecological, financial, and legal confidence in the compensation proposals. Information to do this must be available for review by all interested parties. As highlighted by Hornsea Three Offshore Wind Farm, a failure to ensure all these are in place leads to delays post consent.

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[80] Paras 326, 362 and 387, the Applicant's Derogation Case

[81] Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC

5.53 There is some question as to what constitutes 'normal' or 'standard' measures. The Applicant suggests 'normal' as being within the bounds of every day financial and political realities (see Paragraph 254, Derogation Case -Colony Compensation Measures Evidence Report, ABPmer, December 2022). They further suggest that if normal measures are failing and the measures suggested are over and above what can reasonably be expected to happen, then they are additional.

5.54 RSPB Scotland consider this argument is only true where sites are already at Favourable Conservation Status (FCS). Compensation is a last resort. It is not a mechanism to fix long-term underfunding of nature protection and the failure of devolved and UK Governments to meet individual site level conservation objectives and the overall objective of achieving FCS and coherence of the UK/National Sites Network. Nor is a method to deliver other obligations, for example achievement GES under the Marine Strategy Regulations 2010[82].

5.55 There are of course issues with funding. We understand private organisations have resource to help fill the financial gaps so that measures necessary to meet conservation objectives can take place. We do not however believe this constitutes compensation. Ultimately if a known (or standard) conservation measure is required for the management of a site (to meet the conservation objectives) then it is not over and above what should be taking place regardless of whether delivering that measure is possible and funding allocated. If offshore wind is to happen at the proposed scale, the commitments for FCS and GES must be delivered in parallel too.

5.56 As well as being additional to standard measures to meet existing obligations, the design of compensation measures must be in line with best scientific knowledge and the ecological requirements of the features the measure is needed for. If there is no reasonable guarantee of success, a measure should not be taken into account by the Decision Maker. Providing more of something to address uncertainty does not increase the likelihood of it succeeding overall.

5.57 With regard to timing, RSPB Scotland believe that compensation measures should be in place and ecologically functional before any damage occurs and remain in place for as long as the project's adverse impacts on the site(s) continue.

5.58 As with the design of compensation measures, their implementation timescale must follow basic seabird ecology. Kittiwakes for example do not breed until they are over four years old. RSPB Scotland consider the following factors must all be considered when developing the implementation timescale:

5.58.1 The breeding ecology of the impacted species and timescales likely to be required for the agreed compensation measure to be ecologically effective.

5.58.2 The point at which adverse effects are predicted to occur, which will depend on the nature of the impact- i.e.:

a. For collision: it would be at the point the wind farm becomes operational;
b. For displacement: it would be at an agreed point relating to when the physical presence of the wind farm infrastructure (operational or not) is deemed to be giving rise to displacement that is impacting on the relevant seabird species' population.

82 The Marine Strategy Regulations 2010 (legislation.gov.uk)

c. For foraging (direct and indirect): the implications at different life stages for both seabirds and their prey and potential consequences on the age structure of the respective populations must be considered.

5.58.3 The time it will take for the compensation measure to deliver at the scale required.

5.59 Typically when compensation has previously been required, this has been in perpetuity as the impacts are permanent. As set out by the Applicant, for temporary development, such as an offshore windfarm with a finite life span, this is not the case. Although the cause of the impact (e.g. collision or displacement) would cease because seabirds are long-lived, it will take years before the affected seabird populations recover from the impacts.

5.60 In summary, compensation measures will need to be introduced before and maintained beyond the operational lifetime of the development, though the exact duration of the compensation measure will depend on what it is, and ongoing monitoring of the effected population is vital.

Assessment of proposed compensation measures

5.61 For each Tier I compensation measure, RSPB Scotland has assessed the Applicant's proposals with regard to the criteria contained with the draft Marine Scotland Compensation Framework. This guidance was produced as part of the roadmap of actions to address evidence gaps identified in the Scotland's draft Sectoral Marine Plan for Offshore Wind, Marine Scotland and draws upon the EC guidance and the seven criteria for designing compensatory measures contained within that document.

5.62 Each question has been reviewed for each compensation measure and assigned a Red, Amber or Green (RAG) rating in accordance with the below:

5.62.1 RED: Criteria not met and substantive issues relating to viability and feasibility of the measure are unresolved. Substantial evidence gaps remain. Unless complex issues resolved before consent, RSPB Scotland's advice is that the Minister cannot conclude that the coherence of the UK/National Site Network for the affected species will be protected.

5.62.2 AMBER: Criteria not fully met - significant issues relating to viability and feasibility of the measure are unresolved. Significant evidence gaps remain. Unless these issues are resolved before consent, RSPB Scotland's advice is that the Minister is at risk of agreeing to a compensation measure that will not protect the coherence of the UK/National Site Network for the affected species.

5.62.3 GREEN: Criteria met. No substantive or significant issues relating to viability and feasibility of the measure remain. Any remaining issues are relatively minor and could be dealt with through requirements of any consent granted.

5.63 The full assessments are contained within Annex and a summary provided below in the section below.

5.64 Should potential 'Tier II' or 'Tier III' compensation measures be considered, we would welcome further opportunity to comment.

Colony compensation proposals

Rat eradication at Handa Island

5.65 By way of background, the RSPB has a long history of island restoration. This began with one of the earliest rodent eradications attempts anywhere in the world - the first unsuccessful efforts to remove rats from Ailsa Craig, Scotland in the 1920s . With the advent of second- generation anticoagulant rodenticides in the 1980s and the development of aerial application techniques in New Zealand in the 1990s, island restoration has become an established field of conservation. The RSPB was an early adopter of this conservation tool, supporting the successful eradication of rats from Ailsa Craig in 1991-4, then leading eradication projects on Ramsey Island, Wales (1999) and Ascension Island (2002).

5.66 Handa is an island surrounded by high sea-cliffs lying approximately 350 metres off the Sunderland coast in west Scotland. It is designated an SPA for breeding seabirds. The qualifying species are common guillemot (European importance, 98,686 individuals at time of designation), razorbill (European importance, 16,394 individuals at time of designation), great skua, black-legged kittiwake, and Northern fulmar. (N.B. great skua, black-legged kittiwake, and Northern fulmar are assemblage qualifiers only). Puffin are not a qualifying feature of the SPA (See Handa SPA Citation[83]). It is managed by the Scottish Wildlife Trust and a previously (unsuccessful) eradication attempt took place in 1997.

5.67 Our assessment of rat eradication at Handa to compensate for adverse effect on site integrity (AEoSI) is included in Annex A "Assessment of compensation – rat eradication on Handa Island". The measure is proposed to target kittiwake, guillemot, razorbill, and puffin. We note this proposed compensation is one of the Applicant's first preference measures alongside Kittiwake Wardening at Dunbar Castle and fisheries compensation proposals.

5.68 We have significant concerns as to its effectiveness in terms of the species targeted and the lack of a full feasibility study. There is limited evidence that predator eradication is of benefit to guillemot, razorbill, or kittiwake as due to their nesting habits, none of these species have been the primary beneficiary of previous island restoration schemes. The information provided in the application does not alleviate these concerns. Subject to the other elements of derogation being met, **further information is required before rat eradication on Handa could be considered as compensation.**

5.69 During the consultation process, RSPB Scotland made the Applicant aware that a full feasibility study, carried out in line with best practice to assess feasibility against the seven criteria set out in Table 1 on page 18 of the Manual of the UK Rodent Eradication Best Practice Toolkit (2017)[84] would be required to establish the feasibility of project. We have provided them with extracts from the Manual of the UK Rodent Eradication Best Practice Toolkit to help with this and are disappointed a feasibility study has not been provided.

5.70 To maintain a rat free status, biosecurity is required from the start of the eradication project onwards including during any incursion monitoring. This is particularly crucial on Handa due to its proximity to the mainland and the ability of rats to swim. RSPB Scotland recommend the routine

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83 SiteLink (nature.scot)

84 Thomas, S., Varnham, K. & Havery, S. 2017: UK Rodent Eradication Best Practice Toolkit (Version 4.0). Royal Society for the Protection of Birds, Sandy, Bedfordshire

use of conservation detection dogs (alongside other tools) in surveillance and prevention, as well as to assist in incursion responses.

Kittiwake wardening at Dunbar

5.71 Our assessment of Wardening at Dunbar Castle to compensation for AEoSI is summarised in Annex A "Assessment of compensation – kittiwake wardening at Dunbar". We note this proposed compensation is one of the Applicant's first preference measures alongside rat eradication at Handa and fisheries compensation proposals.

5.72 The principles of wardening, public engagement and appropriate habitat improvement are agreed to be tried and tested measures which can have benefit to seabird conservation. We would welcome the Applicant funding a warden to undertake work to benefit the kittiwake colony at Dunbar.

5.73 Beyond this, we have serious concerns about whether the proposed measure and target of ~1200 kittiwake pairs over 35 years would do more than address the impact of the application on this non-SPA site. The target has not been assessed in the context of predicted mortality from the application (and other Forth and Tay windfarms). Only a 'non-SPA total' in Appendix 11.5, Section 4.2, Table 4.5. Without this, the sufficiency of the work at the Dunbar Kittiwake Colony and its contribution to compensation cannot be evaluated.

5.74 The direct link between the proposed measure and maintaining the coherence of the sites network has not also been addressed.

5.75 Overall, due to the circumstances in which compensation proposals are required, we considered the proposal needs to be developed further. **Further information is required before kittiwake Wardening at Dunbar could be considered as compensation.**

Rat eradication on Inchcolm Island

5.76 Much information from the section 'Rat Eradication on Handa Island' is relevant to this section also.

5.77 This rat eradication project appears to have had further assessment than the Handa project – for example the field study by NBC Environmental in June 2022 and referenced to a feasibility study. We are unclear why the project has been placed as secondary to the measures at Handa and would welcome further information from the Applicant as to why this is.

5.78 Our assessment of rat eradication at Inchcolm to compensate for AEoSI is summarised in Annex A "Assessment of compensation – rat eradication at Inchcolm". The measure is proposed to target kittiwake, guillemot, razorbill and puffin. We note this is a secondary colony compensation measure which could be implemented as part of an adaptive management programme should eradication on Handa not deliver the required outcomes.

5.79 There is limited evidence that predator eradication is of benefit to guillemot, razorbill, or kittiwake. Although a feasibility study for the project is referred to, we have been unable to locate and review it. Evidence the proposed measure would be effective is therefore lacking. We do not consider it should be taken forward as a compensation proposal in its current form. **Further information is required before rat eradication on Inchcolm could be considered as compensation.**

5.80 The species targeted through this proposed compensation measure are the same as those targeted in the Handa rat eradication. Given the lack of scientific evidence of the effective of the proposed measure, it is inappropriate to utilise it as adaptive management and expand it across another island. The probability of rat eradication benefiting cliff nesting kittiwakes remains the same whether it is rolled out on one, two or ten islands.

Summary of colony compensation measures

5.81 While the Applicant has done much research into potential measures, we do not consider any of the proposals as they currently stand are suitable for implementation. **Further information is required on the measures proposed**

5.82 The measures are also insufficient, both individually and in combinations with each other, to compensate for the scale of AEoSI with regard to kittiwake, puffin, razorbill, gannet and guillemot. **Additional compensation measures would be necessary to compensate for the scale of AEoSI.**

Fisheries compensation proposals

5.83 The Applicant has proposed two potential sandeel related compensation measures:

5.83.1 Option 1 to close the remainder of Sandeel Area (SA) 4 to industrial sandeel fishing.

5.83.2 Option 2 to implement ecosystem-based management in SA4 through the development of a Sandeel Management Plan based on the principle of 'one-third for the birds' and the approach taken by Norway in SA3r (see Derogation Case Implementation and Monitoring Plan).

5.84 Both options would include seabird and sandeel monitoring programmes, allowing some catches of sandeels to continue whilst monitoring populations.

5.85 Given the UK is a special case in terms of the size and status of its internationally important, sandeel-dependent seabirds RSPB Scotland strongly believe that a precautionary approach to management of industrial sandeel fisheries across the entire UK Exclusive Economic Zone (EEZ) is necessary to build resilience for seabird populations. This is especially important in the face of mounting threats such as bird's food web disruption, offshore renewable energy development and with the recent outbreak of Highly Pathogenic Avian Influenza (HPAI).

5.86 As such, we continue to advocate for a full closure of the UK EEZ to industrial sandeel fisheries to enabling that building of resilience in seabird populations. The rationale and evidence for this position is primarily provided in section 5 of Dunn (2021[85]). Further, it has been outlined as the overarching UK position to not support fishing for sandeel and a government consultation is currently taking place on a proposal (preferred option) in English waters to ban sandeel fishing entirely.

5.87 Although we welcome the work the Applicant has done in this area and their recognition of the established links between prey availability, seabird breeding performance and adult survival, we have several primary concerns with the proposals put forward as compensation. These are:

[85] Dunn, E. 2021. *Revive our Seas: The case for stronger regulation of sandeel fisheries in UK waters.* Royal Society for the Protection of Birds, Sandy, Bedfordshire

5.87.1 Sandeel fisheries management is not additional to measures that should already be (and are in the process of taking place) and so cannot constitute compensation;

5.87.2 There is potential for additional impacts from the development on sandeel, critical sandeel habitat, sandeel distribution and foraging seabirds;

5.87.3 The practicalities associated with the implementation of some parts of the proposals, especially in Option 2; and

5.87.4 The uncertainties associated with understanding different seabird species population responses (not least due to difficulty in teasing out fishery effects from other long-term changes which caveat its suitability as a compensation measure as per the requirements under the Habitats Regulations.)

5.88 While a UK-wide sandeel fisheries closure will undoubtedly help improve seabird resilience, we are very concerned that the evidence base as described in recent research[86] highlights the uncertainty related to quantifying the scale of benefit - which the applicant proposes will be significant and immediate. This is the first long term study of the consequences of a sandeel closure to seabird populations and demonstrated that period of fishery operation was associated with a decline in kittiwake breeding success in colonies with foraging ranges overlapping the fishery, the closure of the fishery only improved long term breeding success for kittiwake, whereas for guillemot, razorbill and puffin the study found no evidence for negative effects of the fishery on breeding success, nor for positive effects arising from its closure. While outlining the potential for fisheries closures to positively affect some seabird species, the study further highlights the difficulties and complexities in teasing apart the contributions of different drivers to seabird breeding performance against a backdrop of environmental change. This, amongst the other uncertainties and variability means it is near impossible to quantify the practical application of strategic seabird conservation via fisheries management.

5.89 Our assessment of both measures to compensate for AEoSI is summarised in Annex A "Assessment of compensation – sandeel fisheries closure". Neither meet the additionality criteria and, notwithstanding this point, both require substantial further information before they could be progressed. Option 2 should be dismissed as its effectiveness has not been adequately demonstrated and the practicalities of implementing the proposed style of fisheries management has a great many uncertainties.

5.90 We recommend the Decision Maker consider the advice[87] provided by the Statutory Nature Conservation Bodies (SNCB) in England (Natural England and JNCC) as well as the advice of Cefas to Defra on ecosystem risk and benefits of a full prohibition of industrial Sandeel fishing in the UK waters of the North Sea when considering the Applicant's fisheries compensation proposals. This advice details the legal imperative for governments to deliver precautionary management of sandeels and provides an up-to-date assessment of the likely benefits and risks to the wider

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[86] Searle, K.R., Regan, C.E., Perrow, M.R., Butler, A., Rindorf, A., Harris, M.P., Newell, M.A., Wanless, S. and Daunt, F., 2023b. *Effects of a fishery closure and prey abundance on seabird diet and breeding success: Implications for strategic fisheries management and seabird conservation*. Biological Conservation **281**.

[87] Defra. What are the ecosystem risks and benefits of full prohibition of industrial Sandeel fishing in the UK waters of the North Sea (ICES Area IV)? Defra request for advice. Statutory Nature Conservation Bodies (SNCB) in England (Natural England, Cefas and JNCC)

ecosystem. From this evidence there is a clear need to consider sandeel fisheries management from a holistic ecosystem approach at a UK level and beyond to ensure any benefits can be realised and risks minimised. The SNCB advice is also provided in the context of existing pressures and not the additional pressure from new offshore windfarms proposals.

5.91 We also recommend the Decision Maker consider the recent Searle et al. (2023b) study[88] considering the effects of the existing sandeel closure in SA4 on seabird populations and its implications for strategic fisheries management and seabird conservation. While the review of the existing closure highlights the potential for forage fisheries and subsequent management to have a positive impact on some seabirds, it also draws attention to uncertainties and long-term monitoring requirements associated with understanding the effects of forage fisheries management on different species.

Additionality

5.92 Where there is evidence of a problem regarding a lack of food for the qualifying species of SPAs (and the wider marine ecosystem), this should be addressed as part of meeting the SPA objectives and attaining FCS for those protected sites and the management objectives for the UK/National Sites Network[89] .

5.93 Specifically in regard to fishing, Scottish Government has existing obligations and powers to address the negative impacts of commercial sandeel fishing on seabird populations. These lie outside the development consenting and marine licence process. They include requirements to achieve FCS in protected sites, deliver GES under the UK Marine Strategy and obligations to implement an ecosystem-based approach to fisheries to ensure wider impacts are minimised and reversed under the UK Fisheries Act and Scotland's Fisheries Management Strategy to 2030.

5.94 For ecosystem-based fisheries management, the management of sandeel should be considered from a holistic view with all elements of the ecosystem, activities and pressures included. It should not be framed as 'what level of remediation is needed to offset the impacts from a singular (other, new) pressure, such as offshore wind'.

5.95 As set out in the four-country call for evidence on sandeel and Norway pout, governments across the UK have already signalled their intent to consider a new approach to industrial sandeel fisheries management. Owing to the impacts that poor stock health has on the UK's ability to achieve GES for marine birds and food webs, the UK administrations have collectively agreed that urgent actions to protect sandeel and the wider marine ecosystem are needed.

5.96 The Scottish Government have been integral advocates for closing the Scottish EEZ to industrial sandeel fisheries. As a priority action in their Future Fisheries Management Strategy (FFMS)[90] to 2030, they have committed to working with stakeholders to deliver an ecosystem-based approach to fisheries and restricting or prohibiting fishing for species like sandeels which are integral

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88 Searle, K.R., Regan, C.E., Perrow, M.R., Butler, A., Rindorf, A., Harris, M.P., Newell, M.A., Wanless, S. and Daunt, F (2023b) *Effects of a fishery closure and prey abundance on seabird diet and breeding success: Implications for strategic fisheries management and seabird conservation*, Biological Conservation, 281, https://doi.org/10.1016/j.biocon.2023.109990

89 Please see for example regulation 16A, Habitats Regulations

90 The Scottish Government (2020) Scotland's Fisheries Management Strategy 2020-2030

components of the marine food web[91]. This position has been re-iterated by the Scottish Cabinet Secretary on 9th June 2021[92] and the FFMS delivery plan where it was made clear that Scottish Government do not support the industrial fishing for sandeel in Scottish waters owing to ecosystem concerns.

5.97 From these existing obligations, policies, and statements, it is clear that:

5.97.1 Scottish Government do not support industrial fishing for sandeel in Scottish waters based on existing environmental and ecosystem concerns;

5.97.2 This position is also the overarching UK position for UK waters

5.97.3 It pre-dates the proposals for Berwick Bank Offshore Wind Farm; and

5.97.4 Closing sandeel fisheries has already been committed to by Scottish Government and should be already taking place.

5.98 In the absence of a clear mechanism and evidence to demonstrate how sandeel fishing management would be additional to Governments' existing requirements and commitments to deliver GES, Favourable Conservation Status, and an ecosystem approach to fisheries management, **we do not consider either option one or option two would constitute compensation. They are not additional to measures that should already be taking place to meet existing obligations which fall outside the remit of development.**

5.99 It must further be recognised that a fundamental justification for the UK-wide call for evidence on sandeel management[93], and Defra's sandeel consultation which proposes a ban in English waters[94] is the UK's current inability to meet those existing requirements including GES for seabirds and food webs.

Practicalities of implementation as compensation

5.100 Even if alleviating fishing pressure on sandeels is considered as a compensation measure, there would need to be confidence that the measure was delivering. Currently the Applicant cannot guarantee this with certainty or quantify it. There is significant uncertainty associated with the compensation proposal given the number other factors at play which could have a bearing on the effectiveness of fisheries management as a compensation measure.

5.101 We are also concerned that the full scale of change required to deliver a new approach to sandeel management, especially the ecosystem-based fisheries management proposal (Option 2) is underestimated. The Applicant recognises a sandeel management plan and monitoring plans would need to be developed to implement option 2 but we are concerned that the amount of work and time required to develop, adopt and implement these is significant and should not be underestimated. A new approach to the way ICES provides advice would also be needed which would require expert discussion and wider stakeholder engagement. While this process would benefit from improved data collection that developers could help provide, fundamentally, it should

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91 A similar action is contained in the Scottish wild salmon strategy: implementation plan 2023 to 2028 under 'understanding and mitigating pressures in the marine and coastal environment' to '3.8 Restrict fishing activity or prohibit fishing for species which are integral components of the marine food web, such as sandeels [ongoing] (Scottish Government)' (2022)

92 Cabinet Secretary for Rural Affairs and Natural Environment Portfolio Questions Answer 9th June 2021 14:47

93 DEFRA (2021) Call for Evidence on future management of Sandeels and Norway pout (online) (accessed 21.03.2023)

94 Department for Environment Food and Rural Affairs (Defra) Consultation on Spatial Management Measures for Industrial Sandeel Fishing (2023) Section 3 Background on the importance of sandeels, 3.1 UK Marine Strategy Regulations

be driven by ecosystem needs (including additional impacts from offshore wind) as opposed to being determined primarily for the purpose of offshore wind and compensation needs. Further, sandeel Total Allowable Catch (TAC) setting occurs through annual negotiations with other parties the UK shares these stocks with, which occurs outside of the consenting process and again, would also need to be altered to deliver Option 2. Given the scale of changes required and that a plan has not been agreed on how to deliver option 2, this would add insurmountable uncertainty around the implementation of this option.

5.102 Compensation must also be in place and delivering benefits before the impact requiring compensation occurs. As evidenced by Searle et al. (2023b) the timescales and requirements for monitoring the effects of fisheries closures on seabird demography potentially require decades. There are also uncertainties around the delivery and implementation of fisheries management measures and the impact of the development on sandeels, and subsequently seabirds and other species. Implementation of fisheries management measures may not align with the development timeline. We acknowledge that construction would not all happen at once, but do not understand how the Applicant can guarantee 'immediate' benefits to all SPA populations or that sandeel populations will not significantly be impacted, especially given the variety of variables that would help ensure sandeel management benefits can be realised.

5.103 Simultaneously, there are already requirements on governments to address the negative impacts of this fishery and the Scottish and UK Governments are currently considering sandeel management and given the urgency of the current situation, central policy initiatives may have progressed further before a consenting decision is made.

Summary of fisheries compensation measures

5.104 Stronger regulation of the industrial sandeel fishery is required to help build resilience in seabird populations in the face of mounting pressure from food web disruption, offshore renewable energy development and HPAI. It is not an appropriate measure to compensate for the additional pressures from offshore renewable energy development.

5.105 Neither Option 1 or Option 2 are additional to normal measures that would or should reasonably be taken anyway in order to comply with the requirements of the Habitats and Birds Directives, meet the obligations to implement an ecosystem-based approach to fisheries management or achieve Good Environmental Status in our seas.

5.106 Notwithstanding this insurmountable issue regarding additionality, there are outstanding and substantial evidence relating to the practicalities of some elements of the measures, especially Option 2.

Compensation measures summary

5.107 None of the compensation options meet the compensation criteria contained within the draft Marine Scotland Compensation Framework. For all measures, criteria are predominantly not met or not fully met. As such, the Minister cannot conclude that the coherence of the UK/National Site Network for the affected species will be protected.

5.108 As the application can only be permitted through the derogation process, securing compensation goes to the heart of the acceptability. Leaving this detail to pre-commencement condition risks undermining the derogation process and could result in an unimplementable development consent.

This would be unhelpful to both the Applicant and other windfarm developers. It would also hinder Scotland achieving its greenhouse gas reduction and climate change targets in accordance with the Government published strategies.

5.109 Without this final derogation test being met, there is no option but to reject the application in its current form.

Derogation case summary

5.110 In accordance with the Habitats Regulations, an application that could result in AEoSI may only be permitted if:

5.110.1 There are no feasible alternative solutions to the project which are less harmful;
5.110.2 There are imperative reasons of overriding public interest (IROPI) for the project to proceed; and
5.110.3 Compensatory measures are secured to ensure that the overall coherence of the UKI/National Site Network is protected.

5.111 Following a review of the Applicant's derogation case, we recommend Scottish Ministers consider the alternative solutions against the following objective:

> *To aid Scotland in achieving its greenhouse gas reduction and climate change targets in accordance with the Government published strategies through the development of commercial scale offshore wind.*

5.112 The search for alternative solutions has not demonstrated no less harmful sites that would meet the same objective. We do not consider the Scotwind sites have been adequately considered and so requests that Scottish Ministers seek NatureScot's advice as to whether, with the information currently available, it is possible to conclude that development of one or more Scotwind sites would meet the objective as outlined above and result in less potential for harm to protected sites and their species than this Application.

5.113 An absence of alternative solutions has not been established. It is therefore not possible with the information available to permit the application in its current form.

5.114 Notwithstanding the above conclusion, the compensation measures are inadequate for the scale and magnitude of AEoSI and unworkable in their current form. The final test has not been met and the development in its current should be refused.

6. Highly Pathogenic Avian Influenza

6.1 We wish to highlight the importance of the recent outbreak of Highly Pathogenic Avian Influenza (HPAI) on the seabird populations of the East Coast of the UK. We are pleased to see that it has been recognised by the Applicant in their application.

6.2 HPAI has strong implications for the assessment of offshore wind farms, particularly in the context of the robustness of the population to additional mortality and whether the population can continue to be considered in favourable conservation status.

6.3 The impact of HPAI on seabirds also has a bearing on the imperative for the Scottish Government to urgently reduce pressures on and introduce measures to build resilience in wild birds. Sandeel management for example is not only needed to build resilience in seabird populations but if delivered appropriately, could also be an anti-HPAI measure. Ensuring birds have as much food available as close to the colony as possible, both reduces nutritional stress (which should increase disease resilience) and will minimise distance travelled and inter-colony movements, as birds which fail during breeding are more likely to leave the colony early and visit other colonies before departing on migration, increasing the potential risk of spreading HPAI.

7. Conclusion

7.1 An inherent aspect of sustainable development is the right development in the right place. To do this, it is necessary to consider what a development is trying to achieve, and the wider site constraints. As such, the character and location of development are fundamental to its acceptability.

7.2 The character of the development dictates whether there is 'in-principle' policy support. Together with information on the location, it allows the nature of impacts to be assessed and the questions of whether the development is appropriate to the location to be answered. A development type within in-principle policy support will be unacceptable if it is inappropriately located.

Principle of development type

7.3 In the response to the climate crisis, Scottish Government has made clear that the country must reduce its dependence on oil and gas. Expanding offshore wind is a key part of this plan and, through the Offshore Wind Policy Statement (2020)95 Scottish Government have set a target of 8 to 11 GW installed capacity by 2030.

7.4 RSPB Scotland recognise that climate change is the greatest threat to nature and support the transition to renewable energy to help reduce greenhouse emissions. We consider that offshore wind has a part to play in a just transition away from Scotland's dependence on fossil fuels. We support the principle of the development type and agree that renewable electricity generation offshore has strong policy support.

Principle of location

7.5 Development must be appropriate to the place. Inappropriately designed and/or sited developments can cause serious and irreparable harm to biodiversity and also damage the public acceptability of the necessary low-carbon energy transition technology.

7.6 The NMP directs offshore developments to the plan option area identified through the Sectoral Marine Plan (SMP). The most up-to-date Sectoral Marine Plan[96] is that adopted in 2021 and the proposed array area is not listed as a Plan Option within in this document. Its existence is however

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95 Offshore Wind Policy Statement (www.gov.scot)

96 Supporting documents - Sectoral marine plan for offshore wind energy - gov.scot (www.gov.scot) Sectoral Marine Plan for Offshore Wind Energy (www.gov.scot)

acknowledged in the East region section of the plan and also within the Appropriate Assessment[97].. Overall, the extent to whether the site benefits from policy support is unclear. This should be investigated and reported fully by MS-LOT as part of their recommendation to Ministers.

7.7 RSPB Scotland recognise the Applicant has sought to avoid and mitigate impacts of the development as the design of the application has progressed. They have reduced the site area, moved 2km away from the boundary of the Outer Firth of Forth and St Andrews Bay Complex SPA and increased the minimum air gap (the distance between Lowest Astronomical tide and lower blade tip hight). This are all welcomed, and further mitigation to avoid residual impacts (for example avoiding construction during sandeel spawning time) could be secured should consent be granted.

7.8 These however do not remove the fact that the application would be located within an important area for wildlife. As outlined in Section 2 (Ornithological Interest of the Application Site) above, the application array. It is within an area used by foraging seabirds and is on top of critical sandeel habitat. It also is within foraging range of SPA and non-SPA colonies with qualifying features susceptible to impacts from offshore windfarms. Taking these elements together, and as confirmed by impact prediction modelling for collision and displacement there is high likelihood that an offshore windfarm in this location would result in severe impacts to seabirds.

7.9 The application would result in large and significant impacts to kittiwake, guillemot, razorbill, puffin and gannet. This is in addition to the background population declines and the very recent impacts of HPAI.

7.10 Within the range of likely mortalities derived using the methods advocated by NatureScot Marine Scotland Science and RSPB Scotland during scoping, the application is predicted to have large impact on SPA population sizes compared to what it would be in the absence of the development. This is in addition to the background population declines and the very recent impacts of HPAI.

7.11 Mindful of the state of Scottish seabirds and following analysis of impacts, RSPB Scotland consider potential for AEoSI cannot be excluded with regard to the following SPAs in Scotland:

7.11.1 Kittiwake at Forth Islands SPA, Fowlsheugh SPA and St Abbs to Fast Castle SPA

7.11.2 Common Guillemot at Forth Islands SPA, Fowlsheugh SPA and St Abbs to Fast Castle SPA

7.11.3 Razorbill at Forth Islands SPA

7.11.4 Atlantic Puffin at Forth Islands SPA

7.11.5 Northern Gannet at Forth Islands SPA

7.12 Mindful of the state of Scottish seabirds and following analysis of predicted impacts , in combination with other developments in the North Seam, RSPB Scotland consider potential for AEoSI cannot be excluded with regard to the following SPAs:

[97] Appropriate Assessment for Sectoral Marine Plan for Offshore Wind Energy (2020) (www.gov.scot)

7.12.1 Kittiwake at Forth Islands SPA, Fowlsheugh SPA, St Abbs to Fast Castle SPA, Troup, Pennan and Lion's Head SPA, East Caithness Cliffs SPA, North Caithness Cliffs SPA, West Westray SPA, Buchan Ness to Collision Coast SPA, Flamborough and Filey Coast SPA and Farne Islands SPA.

7.12.2 Common Guillemot at Forth Islands SPA, Fowlsheugh SPA and St Abbs to Fast Castle SPA.

7.12.3 Razorbill at Forth Islands SPA, Fowlsheugh and St Abbs to Fast Castle SPA.

7.12.4 Atlantic Puffin at Forth Islands SPA and North Caithness Cliffs SPA.

7.12.5 Northern Gannet at Forth Islands SPA and Hermaness, Saxa Vord and Valla Field SPA.

7.13 In addition and as acknowledged by the Applicant, given the possibility of adverse effects on these breeding seabird SPAs, adverse effects on integrity cannot be excluded for the Outer Firth of Forth and St. Andrews Bay Complex SPA from the application isolation and in combination with other North Sea windfarms.

7.14 An AEOSI means potential effects from the development that are also likely to prevent the achievement of the conservation objectives and cannot be mitigated. These sites are the most important sites for wildlife. They are legally required to be conserved and if necessary restored to favourable conservation status.

7.15 Ultimately, the development array area is well used by species of national importance and subject to the highest level of nature protection in Scotland. It is not the right location for an offshore windfarm. This accords with the mitigation hierarchy and the principle of avoiding unacceptably and significant impacts.

7.16 RSPB Scotland have sympathy with the Applicant's position. They have invested large resources, both time and financial into thoroughly assessing the suite and modelling impacts. We greatly appreciate the work they have done. We also recognise the Firth of Forth Zone was selected by The Crown Estate in 2009. At the point in time, knowledge of marine processes and the impact of offshore wind was less well known and prediction techniques in their infancy. In the intervening 14 years, more information has become available, and awareness of offshore wind impacts have increased. With the information currently available, RSPB Scotland do not consider this site should have been made available for offshore wind.

7.17 MS-LOT and Scottish Ministers should further bear in mind the future cumulative impacts of the application in combination with those already permitted in the context of delivering future offshore wind development. The Plan Options identified within the Sectoral Marine Plan for Offshore Wind Energy are, in essence a spatial strategy for further energy development in Scottish Waters. RSPB Scotland request that the question of whether the application would undermine this spatial strategy for offshore wind is specifically addressed as part of the recommendation to ministers.

Section summary

7.18 Although the principle of an offshore windfarm development is supported and the Applicant holds a lease to allow it to apply for consent to develop a windfarm at this location, **we do not believe this is the right location for a windfarm** The application does not constitute sustainable development and so is contrary to the National Marine Plan, the foundation upon which decisions for

development in the marine environment should be made. The requirements of the Habitats Regulations have also not been met.

7.19 RSPB Scotland wish to highlight to Marine Scotland and Scottish ministers that sediments and other environmental aspects that make an area of sea a good nursery and spawning area for fish and foraging area for seabirds cannot be relocated. It is also not possible to relocate seabird breeding colonies. It is however possible to put an offshore windfarm development in a different location and there are alternative sites available where the same objective of this application would be met. **This application should therefore be refused.**

8. Annex A

Assessment of compensation – rat eradication on Handa Island

Measure: Rat Eradication on Handa		
Criteria	**RAG**	**Commentary**
Aims and objectives of the compensatory measures have been defined in view of: - the conservation objectives which are at risk, - the criteria that justified the selection of the site in the first place, - and the ecological role or function the site plays in network coherence.		The compensation measure aims to eradicate brown rats from Handa with the objective of benefitting kittiwake, puffin, razorbill, and guillemot. No AEoSI on qualifying features of the Handa SPA have been identified from the application either alone or incombination. Due to its distance from the application and impacted SPA colonies, the compensatory measure does not address the SPA objective of maintaining the target population of that species as a viable component of that impacted SPA sites. Handa island was selected following a comprehensive assessment of islands which could benefit from INNS eradication and supported the key species. The search initially focused on the Firth of Forth and then extended to cover all islands in Scotland. A more suitably island was not identified. Targets for all four species have been set by multiplying the predicted additional number adult birds per year as a result of rat removal by the 35-year project life span and adding this to the number of birds that are currently present. The Applicant considers these targets are precautionary as they are not compound growth rates (i.e. they do not consider each previous year's population growth) The predicted number of additional adult birds per year has been calculated as follows - - For Kittiwake: Using the existing (1997 to 2021) average difference in productivity of 0.07 between birds on the main island (where rats are present) and those on the great stack (where rats are not present), mean age specific survival rates (Horswill and

		Robinson, 2015) and assuming a mean age of breeding of 4 years. -> 124 adult birds generated per year - For Puffin: based on the gain of puffins between 1996 and 1997 -> 44 adult birds generated per year - For Razorbill: using an 0.07 productivity increase (assumed from productivity of razorbill on the Shiants between 2015 and 2018 when rodents were removed), mean age specific survival rates (Horswill and Robinson, 2015) and assuming a mean age of breeding of 4 years. -> 160 adult birds generated per year - For Guillemot: using an unjustified 'small difference in productivity' of 0.05 increase, mean age specific survival rates (Horswill and Robinson, 2015) and assuming a mean age of breeding of 6 years. -> 460 adult birds generated per year **The criteria are not fully met - significant evidence gaps remain, and matters require resolution before consent could be granted.**
The compensation measure is targeted to deliver positive ecological outcomes for the qualifying features identified as being at risk.		Burrow nesting seabirds (such as puffins) have been priority for INNS eradication and island restoration in the UK due to their known vulnerability to predatory mammals and strong likelihood of a positive response. On the evidence available, Puffin has the most reasonable likelihood of benefiting from rat eradication on Handa, though these are not qualifying species of Handa SPA. Information must be provided that an expansion of the puffin population on Handa would not undermine the conservation objectives of Handa SPA by either reducing the distribution of the qualifying species within the site or preventing populations of the species being viable components of the site. There is limited evidence that predator eradication is of benefit to either guillemot, razorbill, or kittiwake as , due to their nesting habits, none of these species have been the primary beneficiary of previous island restoration schemes.

		Guillemots have a general preference for sheer cliffs to nest[98] and no return of guillemot was recorded after the 1997 eradication attempt. The potential benefit of rat eradication to these species is currently unknown. The Applicant also concludes that it an area where further study is required. As such, the unquantified 0.05 productivity increase for guillemots used to create the target of an additional 460 guillemots has limited ecological rationale. The suitability of the target for guillemot has not been demonstrated. Razorbill mainly breed on small leges or in cracks on rocky cliffs and in associated scree and on boulder fields[99] which may be more accessible to mammalian predators. No information on razorbill in the time following the 1997 eradication attempt has been supplied. As such, the potential benefit of rat eradication to these species is also currently unknown. Further information on the applicability of the increase in productivity of the Shiants to Handa is also required. The suitability of the target for razorbill has not been demonstrated. Kittiwakes favour vertical rocky sea cliffs[100] which tend to be inaccessible to mammalian predators. As such, it is considered unlikely the proposed measure would be of much benefit to these species. As acknowledged by the Applicant, the difference in productivity between the main island and great stack could be due to factors other than rats, such as human disturbance. Further information is required on the extent of rat predation on kittiwake on Handa is required. The suitability of the target for kittiwake has not been demonstrated. In addition, hedgehog, mink, and stoat have also been previously identified on Handa but no information has been provided as to whether these species will also be eradicated from the island. This information is crucial to assess whether the measure would have the intended benefits. The removal of rats would likely increase the rabbit population which would in turn would likely lead to erosion with associated impacts on puffin nesting habitat/burrows. This is the case on the Flannans and should be considered for this island also.

98 https://jncc.gov.uk/our-work/razorbill-alca-torda/
99 https://jncc.gov.uk/our-work/guillemot-uria-aalge/
100 Black-legged kittiwake (Rissa tridactyla) | JNCC - Adviser to Government on Nature Conservation

		The criteria are not met - substantial evidence gaps remain, and complex issues require resolution.
The technical, legal, and financial feasibility of the compensatory measures have been demonstrated		To succeed, an eradication projects needs the effective targeting of 100% of the INNS, supported by comprehensive measures to keep the risk of reinvasion low and ongoing capacity to respond effectively to any biosecurity breach[101]. Any successful eradication must be sustained through implementation of biosecurity and (48-hour) emergency response plans. We welcome the project being developed in accordance with the UK Rodent Eradication best Practice tool kit (Thomas, 2017[102]). A full feasibility study, carried out in line with best practice to assess feasibility against the seven criteria set out in Table 1 on page 18 of the Manual of the UK Rodent Eradication Best Practice Toolkit (2017) has not however been provided. This is vital to establish the feasibility of the project. A commitment to undertake a condensed assessment and feasibility study based on this guidance does not alleviate our concerns Information provided suggest that the eradication phase will be conducted during the winter period by an eradication specialist in collaboration with Scottish Wildlife Trust (SWT). In the absence of a detailed Feasibility Study, it is not possible to say with any certainty at this stage how long the eradication phase of an island restoration project would take (or how long it might take for the population to recover). It is positive that heads of terms are being agreed with SWT and Scouir Estate to allow this measure to be implemented and monitored for the operational lifetime of the application. The Communication and Engagement Strategy is also welcomed. There must be ongoing commitment among key stakeholders, including, for example ferry boat operators. This is critical to avoid weak links in the eradication and biosecurity chains.

[101] Thomas, S., Brown, A., Bullock, D., Lock, L., Luxmoore, R., Roy, S., Stanbury, A. and Varnham, K.(2017 *Island restoration in the UK -past, present and future. British Wildlife pp* 231-242.

[102] Thomas, S., Varnham, K. & Havery, S. 2017: UK Rodent Eradication Best Practice Toolkit (Version 4.0). The Royal Society for the Protection of Birds, Sandy, Bedfordshire

		The compensation is fundamental to the acceptability of the development should the other requirements of derogation be met. The feasibility is not something that can be left until post consent, and it cannot be assumed that key details will be worked out at a later date. **The criteria are not met - substantial evidence gaps remain, and complex issues require resolution.**
The feasibility of deliverability of the compensation measure has been considered		Neither a detailed Implementation Plan nor a long-term site-specific Monitoring and Evaluation Plan have been provided. These are required to assess the deliverability of the proposed measure. The Applicant has committed to funding rodent eradication, maintaining biosecurity and monitoring/trapping should further incursion for the lifetime of the proposed. Further comments on the duration of compensation measures are provided in a later section. For eradication to succeed, every single individual of the target species must be killed. Eradicating the last 1% of the invasive population can cost more and take longer than the other 99%. The need to invest more per area will increase relatively as the population density of the target species goes down. The short swimming distance from the mainland means the re-invasion risk is hight. Biosecurity and ongoing monitoring and eradication will be vital to the project's success and will require both time and financial backing. It suggested that identifying and controlling the rats and establishing a rat free buffer on the mainland would reduce the risk of further incursion. Not further information has been provided as to how this could be done. RSPB are concerned that it may be very difficult and may also not decrease the risks to incursions to a significant extent. In particular, community support will be vital to the success of maintaining. The rat free buffer should also be subject to a feasibility assessment. RSPB consider the assumption that the measure could be undertaken relatively rapidly is premature given the absence of a full feasibility study. **The criteria are not met - substantial evidence gaps remain, and complex issues require resolution.**

The sufficiency of compensation measures has been demonstrated with reference to the location.		The compensatory measure does not address the SPA objective at of maintaining the population of that species as a viable component of that site for each impacted SPA site. Care must also be taken that the increase in puffin (not a qualifying species at Handa SPA) does not impact the SPA qualifying species and harm the achievement of the conservation objectives . Handa is not local to the Firth of Forth or east coast of Scotland (the location of the application). Notwithstanding the likelihood of success of the measures, given the high site faithfulness of guillemot, razorbill, and kittiwake, RSPB consider it is unlikely that any increase in the breeding populations on this island would result in an increase or recruitment into in adversely effected east coast SPAs. Puffin are the least site faithful of the four species being targeted and, is comparatively more likely than the other three to re-distribute as a result of a population increase on Handa. Handa is however in Scottish waters and RSPB recognise that an increase in population at this location would contribute to the overall Scottish and UK populations of the species. On this basis, (and notwithstanding the change to the spatial spread of the population) the compensation measures would contribute to the network as a whole. **The criteria are not met - substantial evidence gaps remain, and complex issues require resolution.**
The sufficiency of the compensation measures has been demonstrated with reference to the scale of the measure.		RSPB acknowledge the rat eradication at Handa would be part of a suit of compensation measures and that this measure by itself it not intended to compensate all impacts. Nevertheless, compared to the impact of the development (and the likelihood of success/uncertainty of the targets particularly for guillemot and kittiwake) they are insufficient to compensate for the scale of impacts of the application. **The criteria are not fully met - significant evidence gaps remain, and matters require resolution before consent could be granted.**
The sufficiency of the compensation measures has been demonstrated with reference to the timescales for delivery.		Compensation measures should be in place and ecologically functional before any damage occurs and remain in place for as long as the project's adverse impacts on the site(s) continue. Their initial implementation must follow seabird ecology and consider the

		timescales for the compensation to be effective, the point at which the impacts are likely to occur, and the time it will take for the compensation measure to be delivered at the scale required. Furthermore as set out in Section 5, RSPB consider it unacceptable to limit the lifetime of the compensation to that of the offshore wind farm itself as it will take time following the cessation of the operation of a windfarm for impacted populations to recover. More information on how the incursion response capacity would be maintained and funded after the end of the operational phase of the development is also required The criteria are not met - substantial evidence gaps remain, and complex issues require resolution.
The compensation measure is additional to normal measures that would or should reasonably be taken anyway in order to comply with the requirements of the Habitats and Birds Directives.		Handa is an SPA and therefore actions to maintain FCS are required as part of normal management. Rat eradication and island restoration has previously been focused on SPA islands where qualifying features are ground nesting. Due to their nesting habits, guillemot, razorbill, and kittiwake as have not been the focus of rat eradication programmes. While this raises questions over whether there is sufficient scientific evidence for the measure to be successful for these species, it does also mean an eradication programme additional to work that would or should reasonable be taken to comply with the requirements of the Habitats and Birds Directives for Handa SPA. **Criteria are not fully met - significant evidence gaps remain, and matters require resolution before consent could be granted.**
Monitoring the compensation measures is feasible both in terms of implementation / delivery of the measures and their ecological outcomes.		The approach to monitoring and reporting contained with the Implementation and Monitoring Plan is welcome, though largely theoretical rather than being tailored to the island and specific project. A long-term site-specific Monitoring and Evaluation Plan should be provided. For long lived seabirds, the benefits of a rat eradication scheme may not be clear until a decade after eradication. This should be considered as part of designing the monitoring scheme. **Criteria are not fully met - significant evidence gaps remain, and matters require resolution before consent could be granted.**

Adaptive management approaches have been identified		Potential adaptive management approaches have been identified, though details are limited. These include: - Vegetation management - Artificial nest boxes - Social attraction methods (e.g. guano/decoys/playbacks) Alternative compensation measures at alternative sites are also proposed should the preferred measures be unsuccessful. Again, a site-specific Monitoring and Evaluation plan is required to fully assess this aspect of the compensation measure. **Criteria are not fully met - significant evidence gaps remain, and matters require resolution before consent could be granted.**

Assessment of compensation – kittiwake wardening at Dunbar

Measure: Kittiwake Wardening at Dunbar		
Criteria	**RAG**	**Commentary**
Aims and objectives of the compensatory measures have been defined in view of: - the conservation objectives which are at risk, - the criteria that justified the selection of the site in the first place, - and the ecological role or function the site plays in network coherence.		The compensation measure aims to bring the Dunbar kittiwake colony back to the peak numbers of ~1200 pairs over the 35-year duration of the application. These kittiwakes are a locally valued but non-SPA colony. A lack of recent productivity data, assessment of the habitat improvement works, and assessment of impacts from the application is hindering quantitative assessment of whether ~1200 pairs over 35 years is a realistic target. The link between the proposed work at the Dunbar Kittiwake colony and maintaining the coherence of the sites network has not been addressed. For example, the likelihood of any birds from Dunbar kittiwake colony being recruited in the SPA network has not been provided.

		Overall, further information relating to the objectives of the compensatory measures are required. These are matters that cannot be dealt with through condition. **Criteria are not fully met - significant evidence gaps remain, and matters require resolution before consent could be granted.**
The compensation measure is targeted to deliver positive ecological outcomes for the qualifying features identified as being at risk.		The Proposal is still at the feasibility stage and a number of questions (see Table 3.3 of the Colony Compensatory Measures Evidence Report) need to be answered to assess benefits of the measures. There are different productivity rates between the Dunbar castle sub colonies and, as acknowledged by the Applicant, further information is required to understand why this is. There are also concerns that that food supply and/or predation as well as disturbance may impacting the population. These are substantial matters to address before the feasibility of the compensatory measure can be demonstrated. We note the developer is proposing to develop a Kittiwake Management Plan in advance of baseline data collection and use this with the baseline data to produce an Operational Kittiwake Management Plan. This is welcome but given the provision of compensation is fundamental to the acceptability of the development should the other requirements of derogation be met, it is not something that can be left until post consent. **Although much work has taken place advancing this compensation measure the criteria are not met - substantial evidence gaps remain, and complex issues require resolution.**
The technical, legal, and financial feasibility of the compensatory measures have been demonstrated		The principles of wardening, public engagement and appropriate habitat improvement are tried and tested measures which can have benefit to seabird conservation. As above, the project is still in the feasibility stage and there is limited recent baseline colony data and assessment of interventions. It is therefore too early to fully consider technical feasibility. An in-principal agreement (Heads of Terms) that a warden would be employed by East Lothian Council and fully funded by the application has reported to have been reached. An agreement with Dunbar Harbour Trust to allow access to Dunbar Castle has also reportedly been secured. These are both positive steps.

		Dunbar Castle is a Scheduled Monument, and the Harbour is a historic conservation area. There is a positivity that consent for works in these areas might be required. If they were required, the Applicant does not consider gaining them would be an issue. We cannot comment on the likelihood of gaining other licences but wish to highlight it is not something that should be left to condition. **Criteria are not fully met - significant evidence gaps remain, and matters require resolution before consent could be granted.**
The feasibility of deliverability of the compensation measure has been considered		Subject to funding (and legal agreements around this) we agree there is potential for the wardening of Dunbar kittiwake colony long term. The duration of funding for the post by the appliance has not been provided and this requires clarification. There also risks relating to the land access as detailed above. Beyond this, other matters relating to the feasibility of deliverability are considered likely to be minor. **There are no significant matters remaining in relation to this criterion.**
The sufficiency of compensation measures has been demonstrated with reference to the location.		The compensation proposal has not been assessed in the context of predicted mortality from the application (and other Forth and Tay windfarms). Only a 'non-SPA total' in provided (Appendix 11.5, Section 4.2, Table 4.5). This information is vital to evaluate the sufficiency of the work at the Dunbar Kittiwake Colony and its contribution to compensation. **The appropriateness of location has not been demonstrated. Substantial evidence gaps remain, and complex issues require resolution.**
The sufficiency of the compensation measures has been demonstrated with reference to the scale of the measure.		Notwithstanding the proposed wardening would form part of a suit of measures RSPB have serious concerns the impact of the application on this non-SPA colony, how growth of the colony would be impacted by the application and whether the wardening would do more than address the impact of the application on the non-SPA site. **The criteria are not met - substantial evidence gaps remain, and complex issues require resolution.**
The sufficiency of the compensation measures has been demonstrated with reference to the timescales for delivery.		Compensation measures should be in place and ecologically functional before any damage occurs and remain in place for as long as the project's adverse impacts on the site(s) continue. Their initial implementation must follow seabird ecology and consider the

		timescales for the compensation to be effective, the point at which the impacts are likely to occur, and the time it will take for the compensation measure to be delivered at the scale required. Furthermore as set out section 5 above,, RSPB consider it unacceptable to limit the lifetime of the compensation to that of the offshore wind farm itself as it will take time following the cessation of the operation of a windfarm for impacted populations to recover. **The criteria are not met - substantial evidence gaps remain, and complex issues require resolution.**
The compensation measure is additional to normal measures that would or should reasonably be taken anyway in order to comply with the requirements of the Habitats and Birds Directives.		The site is not an SPA and therefore any measures would be additional to those taken to manage the SPA network. **There are no significant matters remaining in relation to this criterion**
Monitoring the compensation measures is feasible both in terms of implementation / delivery of the measures and their ecological outcomes.		The approach to monitoring and reporting contained with the Implementation and Monitoring Plan is broadly welcome. For long lived seabirds, the benefits of a wardening scheme may not be clear until a decade after eradication. This should be considered in designing the monitoring scheme and need for ongoing monitoring throughout the project and beyond. Notwithstanding our concerns with other elements of the compensatory measure, it is likely any outstanding matters relating to monitoring could be secured via condition. **There are no significant matters remaining in relation to this criterion**
Adaptive management approaches have been identified		The Operational Kittiwake Management Plan is proposed to be updated annually based on the outcomes of monitoring as part of the adaptive management approach. A site-specific Monitoring and Evaluation plan is required to fully assess this aspect of the compensation measure Potential alternative (Tier II and III) compensation measures at alternative sites are also proposed should the preferred measures be unsuccessful. **Criteria are not fully met - significant evidence gaps remain, and matters require resolution before consent could be granted.**

Assessment of compensation – rat eradication at Inchcolm

Measure: Rat Eradication on Inchcolm		
Criteria	**RAG**	**Commentary**
Aims and objectives of the compensatory measures have been defined in view of: - the conservation objectives which are at risk, - the criteria that justified the selection of the site in the first place, - and the ecological role or function the site plays in network coherence.		The compensation measure aims to eradicate black rats from Inchcolm with the objective of benefitting kittiwake, puffin, razorbill, and guillemot. The site was selected following a review of the non-SPA forth Islands where rodent eradication could be undertaken to benefit small breeding colonies of the key species. It is not clear whether the stacks (approximately 500 meters away from Inchcolm) would be included in the eradication. This requires clarification. Targets for all four species are stated to be largely speculative as black rats have been present for as long as there have been seabird counts. Based on habitat assessments and increases in productivity from other eradication programmes and nearby, targets are: - For Kittiwake: conservation target of 478 (after 35 years) equating to **10 additional birds per year** - For Puffin: conservation target of 510 (after 35 years) equating to **14 additional birds per year** - For Razorbill: conservation target of 186 (after 35 years) equating to **5 additional birds per year** - For Guillemot: conservation target of 258 (after 35 years) equating to **7 additional birds per year** As set out in the section below, RSPB has substantial reservations about the rational for these targets and the extent to which they are achievable. **The criteria are not fully met - significant evidence gaps remain, and matters require resolution before consent could be granted.**
The compensation measure is targeted to deliver positive ecological outcomes for		Burrow nesting seabirds (such as puffins) have been priority for INNS eradication and island restoration in the UK due to their known vulnerability to predatory mammals and strong likelihood of a positive response.

the qualifying features identified as being at risk.		There is limited evidence that predator eradication is of benefit to either guillemot, razorbill, or kittiwake as, due to their nesting habits, none of these species have been the primary beneficiary of previous island restoration schemes. This is discussed in further detail in the Assessment of compensation – rat eradication on Handa Island above. **The criteria are not met - substantial evidence gaps remain, and complex issues require resolution.**
The technical, legal, and financial feasibility of the compensatory measures have been demonstrated		To succeed, an eradication projects needs the effective targeting of 100% of the INNS, supported by comprehensive measures to keep the risk of reinvasion low and ongoing capacity to respond effectively to any biosecurity breach[103]. Any successful eradication must be sustained through implementation of biosecurity and (48-hour) emergency response plans. We note a field study took place in June 2022 with methods carried out in accordance with the UK Rodent Eradication best Practice tool kit (Thomas, 2017[104]). A reference has been given to *Cain, I. et al (2022). Berwick Bank Wind Farm: Inchcolm Predator Eradication Feasibility Study. Contract report prepared for SSE Renewables.* We are however unable to locate this document within the application and review its conclusions. **Without this document, criteria are not met - substantial evidence gaps remain, and complex issues require resolution.**
The feasibility of deliverability of the compensation measure has been considered		As above, a feasibility study is referenced but not provided. In addition, neither a detailed Implementation Plan and comprehensive nor Monitoring and Evaluation Plan have been provided. These are required to assess the deliverability of the proposed measure. Biosecurity from the start of the eradication project onwards as well as ongoing incursion monitoring is required to help maintain rat free status. RSPB recommend the routine use of conservation detection dogs (alongside other tools) in surveillance and prevention, as well as

[103] Thomas, S., Brown, A., Bullock, D., Lock, L., Luxmoore, R., Roy, S., Stanbury, A. and Varnham, K. 2017 *Island restoration in the UK -past, present and future. British Wildlife* pp.231-242

[104] Thomas, S., Varnham, K. & Havery, S. 2017: UK Rodent Eradication Best Practice Toolkit (Version 4.0). The Royal Society for the Protection of Birds, Sandy, Bedfordshire

		to assist in incursion responses. More comprehensive detail of resourcing of incursion responses is required. **Criteria are not met - substantial evidence gaps remain, and complex issues require resolution.**
The sufficiency of compensation measures has been demonstrated with reference to the location.		The link between the proposed work and maintaining the coherence of the sites network has not been addressed. For example, the likelihood of any birds from the Inchcolm colony being recruited in the SPA network has not been provided. Puffin are the least site faithful of the four species being targeted and, are comparatively more likely than the other three to re-distribute into SPA colonies as a result of a population increase on Inchcolm. The application is within the same range as those impacted and the species of interest will be subject to the same or similar pressures (e.g. collision and disturbance) as those at nearby SPAs which the eradication is seeking to compensate. The compensation benefits have not been assessed in the context of predicted mortality from the application (and other Forth and Tay windfarms). Only a 'non-SPA total' in provided (Appendix 11.5, Section 4.2, Table 4.5). This information is required to evaluate the sufficiency of the work at Inchcolm and its contribution to compensation. **The criteria are not fully met - significant evidence gaps remain, and matters require resolution before consent could be granted.**
The sufficiency of the compensation measures has been demonstrated with reference to the scale of the measure.		RSPB acknowledge the rat eradication at Inchcolm is proposed a secondary compensation measure, and part of a suit of compensation measure. Nevertheless, compared to the impact of the development (and the likelihood of success, particularly for guillemot and kittiwake) they are insufficient. For long lived seabirds, the benefits of a rat eradication scheme may not be clear until a decade after eradication. **The criteria are not fully met - significant evidence gaps remain, and matters require resolution before consent could be granted.**

The sufficiency of the compensation measures has been demonstrated with reference to the timescales for delivery.		Compensation measures should be in place and ecologically functional before any damage occurs and remain in place for as long as the project's adverse impacts on the site(s) continue. Their initial implementation must follow seabird ecology and consider the timescales for the compensation to be effective, the point at which the impacts are likely to occur, and the time it will take for the compensation measure to be delivered at the scale required. In addition, as set out in Section 5 above, RSPB consider it unacceptable to limit the lifetime of the compensation to that of the offshore wind farm itself as it will take time following the cessation of the operation of a windfarm for impacted populations to recover. **The criteria are not met - substantial evidence gaps remain, and complex issues require resolution.**
The compensation measure is additional to normal measures that would or should reasonably be taken anyway in order to comply with the requirements of the Habitats and Birds Directives.		The site is not an SPA and therefore any measures would be additional to those taken to manage the SPA network. **There are no significant matters remaining in relation to this criterion**
Monitoring the compensation measures is feasible both in terms of implementation / delivery of the measures and their ecological outcomes.		As above, a comprehensive and agreed long-term Monitoring and Evaluation Plan has not been provided. The approach to Monitoring and reporting contained with the Implementation and Monitoring Plan is welcome, though largely theoretical rather than being tailored to the island and specific project. It would be very difficult to ascertain whether any breeding birds are additional or have simply redistributed. For long lived seabirds, the benefits of a rat eradication scheme may not be clear until a decade after eradication. This should be considered in designing the monitoring scheme and need for ongoing monitoring throughout the project and beyond. **Criteria are not fully met - significant evidence gaps remain, and matters require resolution before consent could be granted.**
Adaptive management approaches have been identified		Potential adaptive management approaches have been identified, though details are limited. These include:

		- Removal of tree mallow - Removal of litter - Improvements to nesting habitats A site-specific Monitoring and Evaluation plan is required to fully assess this aspect of the compensation measure. Potential alternative (Tier II and III) compensation measures at alternative sites are also proposed should the preferred measures be unsuccessful. **Criteria is not fully met - significant evidence gaps remain, and matters require resolution before consent could be granted.**

Assessment of compensation – sandeel fisheries closure

Measure: Sandeel fisheries closures		
Criteria	**RAG**	**Commentary**
Aims and objectives of the compensatory measures have been defined in view of: - the conservation objectives which are at risk, - the criteria that justified the selection of the site in the first place, - and the ecological role or function the site plays in network coherence.		Sandeel Area (SA) 4 is the largest of the sandeel stocks in Scottish waters and the only one with an active industrial fishery. RSPB have concerns that shutting this fishery alone may simply move the fleets into other SAs in UK waters and therefore support closure of the entire UK EEZ (or the Scottish EEZ and the English part of the Dogger Bank as a minimum – see Dunn 2021). There is no clear, one-size fits all quantitative relationship between number of sandeels and number of seabirds. The relationship is complex, modelling does not give the full picture and there are a great number of uncertainties involved in predicting how the measures will help sandeel, and how (and when) change in the sandeel population can be associated with population changes at SPA colonies. The Applicant has acknowledged that predicting the gains to be obtained from reducing or removing sandeel fishing pressure complex, and relatively uncertain at a quantitative level. This could be better reflected in the conclusion drawn.

		We have several concerns relating to the aims and objective of Option 2. Firstly, to assess the effectiveness of this option as a measure, a plan and monitoring programmes would need to be developed. We also have specific concerns around the elements proposed to deliver ecosystem-based management. The relationships between different species are complex in North Sea food webs both in terms of the interactions between predators and sandeels and their responses to their availability as prey (including differences between seabird species). The RSPB is concerned that the generic rule of thumb of one third for the birds is being proposed as we believe it is inappropriate for this fishery (see 6.1 in Dunn (2021) and should not be used in the UK EEZ. Where appropriate (i.e. outside the UK EEZ) the RSPB believes that ecological multipliers should be used to deliver ecosystem-based management (as set out in Dunn, 2021). Further, the argument that the Norwegian model is the most suitable approach for delivering ecosystem-based management needs further justification. We do not believe that sandeel stocks being in a similar state and in close proximity to SA3 is adequate. We are unclear how the Norwegian model fully accounts for the ecosystem. As we understand, under the Norwegian Approach, areas can be closed to fishing in any year unless the abundance of sandeel is 'relatively high'. We are not aware there is a strict definition of what this is though note in the Norwegian regime an area has not been opened when the biomass has been less than 20,000 tonnes and that for SA4 the reference point of 400,000 tonnes has been provided by the Applicant. There is insufficient information for us to support the aims and objectives of this measure. The Applicant has suggested that the closure of SA4 would provide compensation for kittiwakes as qualifying species at the Flamborough and Filey Coast SPA. We do not agree that this colony would benefit from '*spill over effects from a reduction in sandeel fishing mortality into SA1r*'. Firstly, there is a risk of displacement of fishing effort into SA1r (a key foraging area for FFC SPA kittiwakes) if only SA4 is closed and this could result in a worse outcome. Secondly, and as also recognised by the Applicant, sandeels have limited dispersal both for adults and larvae from one management area to another[105]. We do however

[105] Jensen, H., Rindorf, A., Wright, P.I. and Mosegaard, H.2011. *Inferring the location and scale of mixing between habitat areas of lesser sandeel through information from the fishery*, ICES Journal of Marine Science, 68: 1, pp. 43–51, https://doi.org/10.1093/icesjms/fsq154

		recognise that some birds Flamborough and Filey Coast SPA will forage in SA4 and so may benefit from the SA4 industrial sandeel fishing closure. While we recognise the Isle of May provides strong evidence of the relationship between seabirds, sandeels and sandeel fishing and should be used as the basis to inform precautionary management in support of a closure of the UK EEZ, we note we do not believe it is right to simply scale up the Isle of May results to all impacted SPA colonies from the development to provide estimates of seabird population responses. Recent studies report variations in the response to fisheries, both between colonies and between species[106]. **Criteria are not fully met - significant evidence gaps remain, and matters require resolution before consent could be granted.**
The compensation measure is targeted to deliver positive ecological outcomes for the qualifying features identified as being at risk.		Sandeel are a forage fish, critical for the healthy functioning of North Sea marine ecosystems providing a crucial link between primary production (plankton) and top predators (piscivorous fish, marine mammals, and seabirds). They are a dominant prey of many seabird species particularly those breeding on the east coast of the UK. Kittiwakes in particular are surface feeders and highly dependent on a sufficient supply of sandeels in the summer. Climate change and sandeel fisheries have been linked to seabird productivity and adult survival in North Sea seabird colonies. The principle of closing sandeel fisheries to the benefit of seabird populations (through helping build resilience) is supported. The quantitative relationship between sandeels and seabirds is subject to much uncertainty. It is also important to recognise that: - Sandeels are impacted by climate change -temperature is important in the development of copepod (a main food source) and sandeel spawning. A mismatch in timings between sandeel spawning and copepod egg production results in a lower recruitment into the sandeel population, a lower overall abundance of sandeels and a lower nutritional quality of sandeels. Based on future climate predictions, the frequency of years with a mismatch in timings is likely to increase in the future.

[106] Searle, K.R., Regan, C.E., Perrow, M.R., Butler, A., Rindorf, A., Harris, M.P., Newell, M.A., Wanless, S. and Daunt, F., 2023b. *Effects of a fishery closure and prey abundance on seabird diet and breeding success: Implications for strategic fisheries management and seabird conservation*. Biological Conservation.

		- The nutritional quality and age of the sandeels as well as their abundance is important. With a decrease in nutritional quality, the number of sandeels required to sustain adults and chicks may increase. - Once dispersed, sandeel tend to have limited dispersal and have specific habitat requirements so may be vulnerable to local depletion, for example from overfishing or habitat disturbance/destruction. They may or may not return to disturbed spawning grounds – evidence is needed. Overall, there is a reasonable guarantee of additional sandeels if the sandeel fishery is closed. How this translates to additional seabirds is harder to quantify, particularly given the 35-year life span of the application, the effects of climate change and offshore wind developments on sandeel.
The technical, legal, and financial feasibility of the compensatory measures have been demonstrated		We agree with the Applicant that under the habitats regulations, the obligation to secure compensation lies with the regulator and therefore, a proposed compensation not being within the developer's gift is not a barrier to feasibility. The Applicant has provided options though which sandeel management could be secured and demonstrated its technical feasibility. More information is however required from those who will take forward the measure before the technical, legal, and financial feasibility can be full assessed. We are also concerned that the full scale of change required to deliver a change in sandeel management, especially ecosystem-based fisheries management (Option 2) is underestimated with the main reference being to provide data to ICES to inform stock assessments under this model. The Total Allowable Catch (TAC) setting occurs through annual negotiations and out-with the consenting process. A new approach to the way ICES provides advice would be needed and this would require expert discussion and wider stakeholder engagement. Given the scale of change, this would add considerable uncertainty around the implementation of this option.

		The criteria are not fully met – for both options significant evidence gaps remain, and matters require resolution before consent could be granted. For Option 2, substantial evidence gaps remain, and complex issues require resolution.
The feasibility of deliverability of the compensation measure has been considered		The Applicant recognises that it would need to develop a series of monitoring and management plans with stakeholders, and those responsible for implementing the actions. The RSPB supports this stakeholder-led approach in-principle, but it is difficult to assess the feasibility of the deliverability without the details. **The criteria are not met - substantial evidence gaps remain, and complex issues require resolution.**
The sufficiency of compensation measures has been demonstrated with reference to the location.		The North Sea would be one of the most effective locations to manage sandeel fishing activity. As above, quantifying the benefits of sandeel management in terms of seabird demographic responses is challenging and subject to considerable uncertainty. **There are no significant matters remaining in relation to this criterion**
The sufficiency of the compensation measures has been demonstrated with reference to the scale of the measure.		Quantifying the benefits of sandeel management is challenging and subject to considerable uncertainty. While benefits could be expected that would help build resilience in seabird populations it is difficult to say that they are sufficiently demonstrated with reference to the scale of the measures. From a holistic, ecosystem-based approach, the spatial scale for a closure is not adequate. Given the size and status of its internationally important sandeel seabirds, the UK EEZ would be the more appropriate location to deliver the measure. Notwithstanding RSPB's position on the need for a full UK EEZ closure given that ecosystem-based management is not appropriate in UK waters due to the size and status of our sandeel-dependent seabird populations, we remain concerned by Option 2. The management proposed which relies heavily on the concept of 'one third for the birds' to account for predator needs. Developing and adopting ecological multipliers would be more appropriate however it requires a significant amount of work but as outlined in Dunn (2021). We note the Applicant has suggested the measure would overcompensate for the application. We are concerned by the proposal to carry over benefits from sandeel

		management as compensation for other wind farm developments. This may overlook the potential impacts individual projects have on sandeel habitat and foraging seabirds alongside cumulative and in combination effects. Further clarification on how this might work and benefits can be evidenced is required. **The criteria are not fully met – for both options significant evidence gaps remain, and matters require resolution before consent could be granted. For Option 2, substantial evidence gaps remain, and complex issues require resolution.**
The sufficiency of the compensation measures has been demonstrated with reference to the timescales for delivery.		The deliverability of the compensation has been considered. As it requires the Scottish and UK Governments to implement, monitor and enforce the measures they have yet to provide a timescale for this, it is very difficult to assess this aligns with the developer's timescales or proposals. In addition to this, the time lag between stopping sandeel fishing and the observed benefit to seabirds requires further consideration. In general, compensation measures should be in place and ecologically functional before any damage occurs and remain in place for as long as the project's adverse impacts on the site(s) continue. Their initial implementation must consider seabird ecology and the timescales for the compensation to be effective, the point at which the impacts are likely to occur, and the time it will take for the compensation measure to be delivered at the scale required. As noted in Searle et al. (2023b), the timescales and requirements for monitoring the effects of fisheries closures on seabirds potentially require decades, which 'may well conflict with a desire for rapid management action'. As set out in Section 5 5.58 above, RSPB consider it unacceptable to limit the lifetime of the compensation to that of the offshore wind farm itself as it will take time following the cessation of the operation of a windfarm for impacted populations to recover. Further information is required to demonstrate the sufficicent of the timescale for delivery of the compensation measure. **The criteria are not met - substantial evidence gaps remain, and complex issues require resolution.**
The compensation measure is additional to normal measures that would or should reasonably be taken		Where there is evidence of a problem regarding a lack of food on qualifying species of SPA colonies (and the wider marine ecosystem), this should be addressed as part of meeting the

anyway in order to comply with the requirements of the Habitats and Birds Directives.		SPA objectives and attaining favourable conservation status to comply with the requirements of the under the Habitats Regulations. In the absence of a clear mechanism and evidence to demonstrate how sandeel fishing management would be additional to Governments' existing requirements to deliver GES, and an ecosystem approach to fisheries management, or that they are additional to commitments made by the UK's Fisheries Administrations regarding sandeel management we do not consider the proposal constitutes compensation. **The criteria are not met.**
Monitoring the compensation measures is feasible both in terms of implementation / delivery of the measures and their ecological outcomes.		Much of the detail monitoring and management associated with the proposed compensation measure remains to be confirmed through liaison with stakeholders. Clarity on who, how and when data would be collected, where it would go and how it would be used is essential. Attention should also be given to how the effect of change in fishing could be distinguished from other impacts on both sandeels and seabirds. Searle et al. (2023b) highlights 'the difficulties in teasing apart drivers amongst ongoing environmental change'. As such, it is not clear how any monitoring will be able to disentangle the effects on sandeels from climate change, changes in the ecosystem via the presence of turbines and consequent changes in seabird diet. It is also unclear how monitoring of impacts of the compensation measures on seabird productivity, survival and population size will be disentangled from, for example, those caused by HPAI, and other environmental correlates. It will also be necessary to monitor the location and activity of industrial sandeel fishing boats though remote electronic monitoring (REM) with cameras. **The criteria are not fully met - significant evidence gaps remain, and matters require resolution before consent could be granted.** We welcome remarks made to assure safeguards are put in place to ensure that any data collected, and detailed methodologies are shared with the relevant authorities and made available to interested stakeholders. Should the proposal go ahead this must be clarified and adhered to.

		We welcome the inclusion of acoustic monitoring for sandeels and suggest this invasive monitoring is prioritised over expansion of dredge samples
Adaptive management approaches have been identified		Option 2 has some level of adaptative management as part of the Norwegian Approach, where areas can be closed to fishing in any year unless the abundance of sandeel is 'relatively high'. As noted elsewhere (See section on "Practicalities of implementation as compensation"), we have concerns about this management style, its suitability in this region, the extent to which it is ecosystem based and the how it could effectively be communicated and enforced. The RSPB does not believe that adaptive management has been sufficiently considered if a sandeel closure cannot be secured. There is a mention of removing pressure from scallop dredging (to benefit sandeels) but limited supporting information has been provided. The Applicant has identified considerable uncertainty in the efficacy of restricting scallop dredging remains **The criteria are not met - substantial evidence gaps remain, and complex issues require resolution.**

9. Annex B: About the RSPB

9.1 RSPB Scotland is part of the RSPB, the UK's largest nature conservation charity, protecting habitats, saving species, and helping to end the nature and climate emergency. For over a century we've acted for nature through practical conservation and powerful partnerships, campaigning and influence, and inspiring and empowering millions of people, including almost 1.2 million members. Our network of over 200 nature reserves sits at the heart of our world leading science and conservation delivery.

9.2 The principal objective of the RSPB is the conservation of wild birds and their habitats. The RSPB therefore attaches great importance to all international, EU and national law, policy and guidance that assist in the attainment of this objective. It campaigns throughout the UK and internationally for the development, strengthening and enforcement of such law and policy. In so doing, it also plays an active role in the domestic processes by which development plans and proposals are scrutinised and considered, offering ornithological and other wider environmental expertise. This includes making representations to, and appearing at, public inquiries and hearings during the examination of applications for development consents.

Dogger Bank South Offshore Wind Farms

Dogger Bank South
Offshore Wind Farms

RWE

Windmill Hill Business Park
Whitehill Way
Swindon
Wiltshire
SN5 6PB

Offshore

Our ref. 004688357-01
Contact Colin McAllister
Email dbs@rwe.com

21/02/2023

Section 36 Consent - Berwick Bank Offshore Wind Farm - Firth of Forth
RWE Representation

Dear Sir or Madam,

On behalf of RWE I would like to make representation on the s36 Consent application for Berwick Bank Offshore Wind Farm as follows.

1. We note that the assessment methodology (the 'Scoping Approach' which used parameters advised to the Applicant in the Scoping Opinion) is highly conservative and is much more precautionary than standard approaches previously agreed either in Scotland or England. We consider that adoption of the 'Scoping Approach' will be detrimental to achieving our national ambitions for decarbonisation and Net Zero. We consider that the 'Developer Approach' is sufficiently conservative and proportionate. Adoption of the 'Scoping Approach' would have serious implications for in-combination levels of effect, over-estimating the magnitude of effect and therefore scale of any compensation required.

2. From cross-industry discussion over the last few years, fisheries management has emerged as the measure most likely to be of a scale for the compensation necessary to offset potential ornithological issues if we are to achieve the national ambitions for decarbonisation and Net Zero. Implementing a fisheries based compensation measure for a single project would seem to pre-empt the most likely vehicle for strategic compensation in either England (given that Sandeel Area 4 overlaps with English waters) or Scotland.

The Derogation Case provides an indication of the sufficiency of the proposed measure (Table 26 in Section 17.5) in terms of the compensation ratio when considering Berwick Bank's impact and indicates that there would be 'surplus' to provide for future projects. However, the Derogation Case does not provide any commentary on what the appropriate compensation ratio would be for the project alone and what the surplus would be (i.e. what the potential 'headroom' for future projects would be). This is likely due to the fact that there is no clear consensus on what the scale of compensation should be in non like-for-like cases and the level of uncertainty highlighted by the Applicant themselves. The concern therefore is that a single project has the

RWE Renewables UK Limited: Registered in England and Wales no. 03758404
Greenwood House, Westwood Way, Westwood Business Park, Coventry, United Kingdom CV4 8PB.
RWE Renewables Management UK Limited: Registered in England and Wales no. 12087808
Registered Office: Windmill Hill Business Park · Whitehill Way · Swindon · Wiltshire · SN5 6PB.
RWE Renewables UK Swindon Limited: Registered in England and Wales no. 02550622
Registered Office: Windmill Hill Business Park · Whitehill Way · Swindon · Wiltshire · SN5 6PB.

potential to 'use up' a compensation measure before adequate work has been undertaken to understand what future requirements may be.

We therefore wish to stress the need for consideration of the wider picture, including potential future in-combination scenarios and that any licence conditions to be carefully drafted to not 'sterilise' this measure from use in future projects.

Should you have any queries in relation to the above points please contact me at dbs@rwe.com.

Yours faithfully

Colin McAllister
Development Manager
Dogger Bank South Offshore Wind Farm Projects

Royal Yachting Association Scotland

RYA Scotland

Royal Yachting Association Scotland

Caledonia House
1 Redheughs Rigg
South Gyle
Edinburgh
EH12 9DQ

T +44 (0)131 317 7388
E admin@ryascotland.org.uk
W www.ryascotland.org.uk

13 January 2023

Case Officer, Marine Scotland – Marine Planning and Policy
Scottish Government, Marine Laboratory,
375 Victoria Road,
Aberdeen,
AB11 9DB
MS.MarineRenewables@gov.scot

Dear Emma,

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 (AS AMENDED), MARINE LICENCES UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE BERWICK BANK OFFSHORE WINDFARM, OFF THE COAST OF EAST LOTHIAN AND THE SCOTTISH BORDERS.

I have read the relevant parts of the above application on behalf of RYA Scotland. I took part in both Navigational Risk Assessment workshops and note that my comments have been taken account of. For that reason RYA Scotland has no objection to the section 36 consent being granted.

However, I note that there is a possibility of reduced access to local ports although no details are given. The documentation states that Arbroath is the nearest harbour to the array and I would be concerned if there was reduced access to it for recreational craft as it is an important stop for recreational vessels on passage up or down the east coast. The nearest suitable harbour to the north is Stonehaven (28 nm). If entry is not possible due to heavy onshore weather, the next nearest harbour is Peterhead (64 nm). To the south, there are harbours in the Tay but access may not be possible against an ebb tide, in which case the nearest harbour is Anstruther (29 nm). The coast is unforgiving in easterly weather so access to Arbroath is particularly important in times of deteriorating weather or if crew need to be brought ashore for medical reasons. As I have mentioned before, the proliferation of wind farm activity off the east coast will require mariners to be especially alert leading to increased risk of tiredness, particularly on short-crewed vessels.

sport scotland
LOTTERY FUNDED

RYA Scotland

Royal Yachting Association Scotland

Caledonia House
1 Redheughs Rigg
South Gyle
Edinburgh
EH12 9DQ

T +44 (0)131 317 7388
E admin@ryascotland.org.uk
W www.ryascotland.org.uk

This may result in a greater need to break the journey, for example at Arbroath. Nevertheless, with appropriate planning, increased use of Arbroath, if that is being considered, should not adversely affect recreational craft. Indeed , I recognise the potential benefit to the harbour and its users of increased activity.

Yours sincerely,

Dr G. Russell FCIEEM(retd) FRMetS
Planning and Environment Officer, RYA Scotland

Scottish Borders Council

John Curry
Director – Infrastructure & Environment

Emma Lees
Marine Licensing & Consenting Casework Officer
Marine Directorate
Licensing Operations Team

By email

Please ask for: *Scott Shearer*
Our Ref: *23/00007/S36*
Your Ref:
E-Mail: *sshearer@scotborder.gov.uk*
Date: *26.04.2023*

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989, MARINE LICENCES UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE BERWICK BANK OFFSHORE WINDFARM, OFF THE COAST OF EAST LOTHIAN AND THE SCOTTISH BORDERS

I write with reference to the above consultation. Scottish Borders Council (SBC) are experiencing unprecedented levels of renewable energy development pressures which is impacting our resources and processing time. We would apologies for our delayed response however I can confirm our observations are as follows;

Advice for the Marine Scotland Licensing Operations Team (MS-LOT)

Scottish Borders Council **does not object** to the proposed development. We do identify concerns regarding some of the resultant landscape and visual impacts of the proposal in particular the visual impact as a result of the sheer extent of the proposed wind farm from outward coastal views. However when considered prevailing development plan policies, these concerns does not result in SBC objecting to the proposed development nevertheless it would appear that the removal of the two rows of turbines nearest to the Scottish Borders would address this matter.

Our full assessment is provided below.

ASSESSMENT

The proposed development has been considered against our development plan and in particular the following policy provision;

Development Plan Policies:

National Planning Framework 4

- Policy 1: Tacking the Climate and Nature Crises
- Policy 3: Biodiversity
- Policy 4: Natural Places
- Policy 7 Historic Assets and Places
- Policy 10: Coastal Development
- Policy 11: Energy

Local Development Plan 2016 (LDP):

- PMD1 Sustainability
- PMD2 Quality Standards
- ED9 Renewable Energy
- HD3 Protection of Residential Amenity
- EP1 International Nature Conservation Sites
- EP2 National Nature Conservation Sites and Protection Species
- EP3 Local Biodiversity
- EP5 Special Landscape Areas
- EP7 Listed Buildings
- EP8 Archaeology
- EP9 Conservation Areas
- EP10 Gardens and Designated Landscapes
- EP14 Coastline
- EP15 Development Affecting the Water Environment
- IS4 Transport Development and Infrastructure

The Electricity Act 1989

This proposal is required to be assessed under section 36 of the Electricity Act 1989. The Electricity Act requires that in formulating proposals to generate electricity, regard shall be had to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural or historic interest and to mitigating the impact any proposals may have on these: and that Scottish Ministers shall have regard to these matters in considering an application under Section 36. The Development Plan is a material consideration in the determination of a Section 36 application.

Planning Policy

The principle planning policy considerations which this development is required to be considered against are Policy 11 of NPF4 and Policy ED9 of the LDP. Both these policies are generally supportive towards renewable energy development, which includes off shore wind farms.

The proposed development is of a significant scale. Within the Offshore Wind Policy Statement (OWPS) 2020, the Scottish Government have set a target to generate 11GW of offshore wind in Scottish Waters by 2030. In 2020 it is understood that the consented capacity at that time would generate 5.6GW. It is clear that to meet this target further development it needed. This development would generate up to 4.1GW which would make a vast contribution towards meeting renewable energy targets to assist with attaining Net Zero targets. Following the adoption of NPF4 the renewable energy benefit that this development would provide requires significant weight within the ‘planning balance’.

Policy 11 of NPF4 and LDP Policy ED9 sets out a range of Development Management considerations which proposed wind farm developments are required to address. The impacts include significant landscape and visual impacts, cumulative impacts; impacts on communities and individual dwellings; historic environment; biodiversity; aviation and defence interests; telecommunications and broadcasting; road traffic; water environment; decommissioning of developments and site restoration.

NPF4 does acknowledge that significant landscape and visual impacts are to be expected from some forms of renewable energy development. Where these impacts are localised and/or appropriate design mitigation has been applied, NPF4 deems that these landscape and visual

effects are acceptable. The acceptance of some level of landscape and visual impact arising from developments such as wind farms is a clear shift from the policy position of Scottish Planning Policy.

In principle, NPF4 and the Councils LDP are supportive of renewable energy development in this location however the benefits of energy production are still required to be weighed against any disbenefits arising from the proposed development as part of the planning balance. When this careful balancing exercise is being carried out NPF4 explicitly requires decision makers to give significant weight to the contribution a development will make towards renewable energy targets as part of their consideration. This requirement shifts the balance in favour of renewable energy developments nationally, but should not be considered as a blanket acceptance of wind energy development. It is the act of the planning balance, which will still determine the suitability of a wind farm against prevailing development plan policies, however it is clear that this development would make a sizeable contribution to renewable energy targets.

Landscape and Visual Impacts

Landscape and visual impacts are potentially the greatest effects that this proposed off shore development would have upon Scottish Borders interests. There will be visibility from the Berwick Coast Special Landscape Area (SLA) which include popular tourist locations and routes including the Berwickshire Coastal Path, the settlements of St Abbs, Coldingham, Eyemouth and surrounding communities.

The Councils Landscape Architect has considered the landscape and visual impacts arising from the proposed development and we provide the following comments;

- The photomontage visualisations appear to have been carried out when the horizon is hazy which gives a false sense of the potential effects. The Landscape Institute Technical Guidance Note 06/19 Visual representation of Development Proposals recommends that baseline photography should be 'based on good quality imagery, secured in good, clear weather conditions wherever possible'. Photography taken in clearer weather conditions would have been closer to the worst case scenario giving a more accurate picture of potential significant effects.
- In several of the views e.g. from Tun Law (39.6km) there are 4 areas where due to the lines of turbines being head on in the view they appear almost as a solid mass or clump and draw attention. However, it is noted that any turbines beyond 60km are not anticipated to be visible. This should reduce the visible overlapping or 'clump' effects.
- In general we agree with the assessment of effects of most of the viewpoints. Our main areas of concern are VPs 13, 14 and 15, which have been assessed in the EIA Report as significant (major/moderate). These VPs are closest to the windfarm development between 38.16km and 40.40km. From these viewpoints, with the increased elevation on prominent headlands and the closer proximity of the viewer to the turbines, the contrast in height between Berwick Bank and the adjacent Neart na Gaoithe appears greater. The Berwick Bank turbines appear more prominent in the view with greater contrast between the vertical element of the turbines and horizontal skyline. The impact of the wind farm on the dramatic coastal landscape of these viewpoints have relatively little influence from the built environment which should reduce the perception of the 'dramatic and wild, expansive and exciting' special qualities of the Berwickshire Coast Special Landscape Area (SLA).
- VP15 – St Abbs is of particular concern, the closest viewpoint at 38.16 km distance. This highly sensitive view point is in a remote and less developed part of the coastal landscape where the main focus is on the views. It is also a very popular visitor destination not only for those walking long distance coastal paths but by daily visitors looking to experience the dramatic landscape and viewpoints in combination with the marine and nature reserves,

geology and the nearby attractive village and harbour. Currently there is little to detract from the special qualities of the SLA and the views across the seascape.

- I note that at times of excellent visibility the Met Office visibility frequency is likely to be a little higher than the stated 28.6% of 40-60km as the windfarm is at 38.16km distance. This is not insignificant.
- The development will introduce nighttime red coloured aviation lighting into an area which currently has low levels of artificial lighting when viewing outwards from the Scottish Borders. Where aviation lighting is required we would wish for the number of lit turbines to be minimised where CAA regulations allow. We are aware that aviation lighting is an advancing technology. In the event that the development is consented and after it becomes operational should technological or regulatory advances be made which can reduce the impact of aviation lighting we would wish this development to alter any installed lighting or it operation to allow its impacts to be further reduced.

The Berwick Bank wind farm will be a significant development within the coastal landscape and will alter outward views from the Scottish Borders. The view will change to become a windfarm influenced coastal seascape and will result in significant impacts for sensitive receptors associated with the coastal landscape, especially from higher elevations such as cliff tops and in areas at 40km distance or less. In particular these views will be experienced along the coastal path and locations identified within the LVIA. That said, the turbines will generally be seen on or beyond the horizon, in the far distance without entering the substantial area of seascape between the viewer and skyline. The complex nature of the development due to its depth in the view, as seen in the wirelines is likely to be somewhat reduced beyond 60km as at this distance and greater there should be no visibility of the turbines (based on Met Office data).

While the Council is not opposed to the proposal in general landscape and visual terms, there remains concerns with regard to both the visible extent and prominence of these turbines from key viewpoints. The applicant should look to mitigating potential significant effects on sensitive receptors and reduce the prominence of the turbines in VPs 13, 14 and 15. The removal of the two closest lines of turbines to the Scottish borders coast line could go some way to reducing the visibility frequency to 20% (45 to 60km distance) and may also reduce adverse effects of nighttime lighting on sensitive receptors.

Other Matters

If any the development is seeking to utilise the road network within the Scottish Borders as part of the site construction traffic movements then we would recommended that a Transport Assessment detailing all proposed trips with relevant swept path analysis is required to ensure the safe passage of abnormal loads through the Scottish Borders.

We have carried out an internal consultation exercise with relevant specialist officers and assessed the merits of the effects of the proposal against other Development Management considerations and have no comments to add.

Conclusion

The adoption of NPF4 has made it clear that the renewable energy deployment remains a key priority for the Scottish Government. NPF4 and the Offshore Wind Policy Statement 2020 confirm that more off shore wind farms will be required to meet legally binding net zero emissions targets. It is clear that planning decisions have a key role to play to tackle the climate emergency. NPF4 now explicitly requires that decision makers must give significant weight to the contribution a development would make toward renewable energy and climate change targets. This development would make a significant contribution to meeting Net Zero targets. Of the current ScotWind schemes is it noted that this scheme would be at the most advanced stage and without this

development current 2030 Net Zero targets may not be met. The development would generate national economic benefits which includes substantial employment opportunities which would be hoped to boost local coastal communities within the Scottish Borders.

The scale of the proposal will generate big benefits however this scale will also result in large environmental impacts. A careful balancing exercise is required to be undertaken against prevailing development plan policies where the benefits of energy production, and the disbenefits of environmental impact are weighed carefully against one another as part of the planning balance.

Landscape and visual impacts pose the greatest environmental effects for the Scottish Borders as a result of this proposed development. The introduction of up to 307 wind turbines within the Firth of Forth will change the character of the Scottish Borders coastline and in particular outward views. The very large extent of the array has the potential to appear prominent from important and sensitive locations along the Scottish Borders coastline. The development will introduce the potential for visibility of red coloured aviation lighting which may appear incongruous with nighttime coastal setting of the Scottish Borders.

Landscape and visual impacts are mitigated to a degree by the distance of the development from the Scottish Borders and we are satisfied that the development will not adversely affect the qualifying interests of the Berwickshire Coast SLA. Having weighed up the benefits of the proposed development against the potential harm caused by its environmental impacts it is considered that on balance the significant contribution the development would make towards meeting renewable energy targets outweighs its resultant landscape and visual impact. The proposed development is judged to align with prevailing development plan policy and the requirements of The Electricity Act 1989.

Scottish Borders Councils **does not object** to the proposed development, however we would advise that the removal of the two rows of turbines closest to the Scottish Borders would likely remove any detrimental landscape and visual impacts on the Scottish Borders.

Yours Sincerely,

Scott Shearer
Peripatetic Planning Officer

Scottish Environment LINK Marine Group

Via email to:
ms.marinerenewables@gov.scot

31 March 2023

Dear Emma

Berwick Bank Offshore Wind Farm

On behalf of the Scottish Environment LINK Marine Group, I am writing to **object** to the proposal submitted by SSE Renewables to construct and operate an offshore windfarm off the East Lothian and Scottish Borders coastline.

LINK supports renewable energy development in the right place and commissioned a report making recommendations for how to do so at sea. We also recognise that offshore wind energy is essential to meet the Scottish and UK Government decarbonisation targets. But, as with all development, offshore wind must be located and designed appropriately to minimise harm to nature which is in crisis and to the wider environment.

We also question whether the proposals have sufficiently considered the degree to which the development proposal fits with some important general policies of Scotland's National Marine Plan. In particular GEN 3 (Social Benefit), GEN 4 (Co-existence), GEN 7 (Landscape/seascape) and GEN 9 (Natural Heritage). If approved, we would be extremely concerned about the precedent this would set for future developments. We request Ministers consider carefully whether permitting this application would undermine the future delivery of further offshore wind in Scottish waters.

In terms of the specifics of the proposed development, we note that it overlaps with the Firth of Forth Banks Complex Marine Protected Area (MPA). Turbines are proposed to be sited on the Berwick and Wee Bankie banks which support ocean quahog (*Arctica islandic*) aggregations. The Wee Bankie is itself an important geomorphological feature with scientific importance for understanding our climate history. Information provided by the applicant further indicates the array area overlaps with numerous spawning and nursery areas including cod, whiting, herring and sandeel.

The area is used frequently used by harbour porpoise, bottlenose dolphins and minke whales, with the occasional sighting of pilot whales. All cetaceans are legally protected throughout Europe under the Habitats Directive, and in the UK under a series of regulations of strict protection from injury, killing and disturbance. The development of this offshore windfarm has a significant potential to negatively impact these species.

Our primary concern surrounds the intense noise pollution during construction as research clearly demonstrates this can cause disturbance and physical harm to cetaceans and other marine species at significant distances away from the construction sites. As the proposed site overlaps with spawning and nursery areas for various fish species, including sandeels which are a main prey species for harbour porpoise, the development causes us concern.

The proposed development is also partially within the Outer Firth of Forth and St Andrews Bay Complex Special Protection Area (SPA) which is designated for the protection of 21 seabird and waterbird species and is a hugely important area for wildlife in Scotland.

Tracking and digital aerial survey data indicates the area is greatly used by seabirds especially in the breeding season. This most likely is due to the presence of prey species which in turn will be associated in part with the underlying sediments. It is a particularly important area for nature and consequently proposed development within it should be thoroughly scrutinised to ensure it is at an appropriate scale.

LINK **objects** to the proposed development for the following reasons:

1) The failure to recognise uncertainties in modelling seabird mortality.
2) The scale of impact on seabirds and landscape.
3) The need for additional assessment of the impact on fisheries and coastal communities.
4) The failure to meet the derogation requirements.

Modelling of seabird mortality

There are a great many uncertainties involved in modelling collision, displacement, and population viability models. All models are simplified versions of reality and the data collected to inform a model will generally only capture part of the process. The application does not adequately recognise these uncertainties, and this could lead to an underestimation of impacts that could hinder the consenting of later offshore wind development which could generate more power and have fewer negative impacts on nature. It is important that decisions are informed by appropriate models and evidence.

Impact on seabirds

Seabirds are relatively long-lived, tend to breed later and have fewer young than other birds. Consequently, their populations are sensitive to small increases in adult mortality. Their survival and productivity rates can be impacted by offshore windfarms directly through collision as well as indirectly, such as through displacement from foraging areas. They are also already under severe pressure from food web distribution, existing offshore renewable energy development and highly pathogenic avian influenza (HPAI).

Despite the modelling uncertainties, impacts over the 35-year lifetime of the proposed development are large. At the St Abbs to Fast Castle SPA for example, after the 35-year lifetime of the proposed development, the population size of the SPA for kittiwake is expected to be 37.5% of what it would be in the absence of the development. In combination with other developments, it could be 34.1%. We believe this fails the test of GEN 9 of the National Marine Plan.

The damaging nature of the proposed development on seabirds is further highlighted by virtue of it requiring derogation from the habitat's regulations. The Applicant has themselves acknowledged that adverse effects on site integrity cannot be ruled out for nine SPAs for kittiwake, guillemot, razorbill and puffin. We further consider that gannet should be included within this list.

Impact on landscape

NatureScot's 2017 Guidance on windfarm siting is not followed in the application. For example, the application proposes that because the turbines will have a 'natural' feel as their movements will be synchronised with the wind and waves, mitigation or compensation of landscape impact is not required. The movements of the turbines are not what an assessment of landscape impact should be based on according to the NatureScot guidance. A site in deeper water where the landscape impact is lesser would be more appropriate.

In contrast to the conclusions drawn in the application, the cumulative impact on the seascape of the Firth of Forth will be significant as Berwick Bank is much larger and visible to shore than Neart Na Gaoithe. We believe therefore that the proposal fails to meet GEN 7 of the National Marine Plan.

Assessment of impact on fisheries and coastal communities

The East Lothian marine environment is economically important to communities - through marine tourism including wildlife experience boat trips, scuba diving and through low impact fisheries. The application does not fully assess the potential impact of the proposal on these socio-economic benefits. For creelers, the application fails to assess if it will be safe or practical for creelers to enter the windfarm when operational. Whilst existing legislation does not prohibit creelers from entering operational windfarms, this is not the same as it being safe (e.g. proximity to turbine) or economically viable (e.g. health of stocks and where gear can be put down).

The mechanism used to forecast jobs is not commonly used anywhere else and so does not allow for comparison. It is unclear what the true amount of local jobs created will be. We believe that the proposal therefore fails to meet GEN 3 (Social Benefit) and GEN 4 (Co-existence), 4.16 in particular, of the National Marine Plan.

Failure to meet the derogation requirements

The applicant has not demonstrated they have met the derogation requirements. The search for alternatives sites is inadequate and the proposed compensation measures insufficient.

There are evidence gaps around the colony compensation measures at Dunbar and Handa in terms of the species targeted, the feasibility of their implementation and their contribution to maintaining the integrity of the protected sites network. In particular, rats have been cleared from Handa twice and both times made a return. The numbers of birds anticipated to increase per year on Handa appear to be overestimated, in large part because kittiwakes commonly nest on very steep cliffs which are difficult for rats to access. Whilst it is important to continue to address rat incursions on Handa; especially for ground nesting seabirds, the proposal for invasive non-native species could have more impact by considering an all-Scotland wide response.

The proposal to add artificial nests and ledges to Dunbar castle to increase kittiwake breeding success and secure population growth, fails to address the reasons for kittiwake population decline at that site. The kittiwake population is declining due to the effects of climate change on sandeels and potentially visitor disturbance; there is no shortage of available nesting space at the harbour. The proposal also fails to take account of the historic importance of the castle /harbour area, including visual impacts on the town's coastal landscape. In addition they are, without the accompanying fisheries compensation measures, inadequate to compensate for the scale of impacts proposed.

The fisheries compensations (both options 1 and 2) are also problematic. Sandeel closure is not additional as it is a measure that should already be taking place. Scottish Government have already committed to the closure of the industrial sandeel fishery in Scottish waters to meet their obligations to deliver Good Environmental Status of the seas and take an ecosystems-based approach to fisheries management[1]. This is in the face of existing pressures. The proposal therefore is not compensation. Furthermore, there is outstanding and substantial evidence relating to the practicalities of some elements of the measures, especially the Norwegian style management proposed in Option 2. The

[1] Fisheries Management Strategy 2020 to 2030: delivery plan (September 2022); https://www.parliament.scot/chamber-and-committees/questions-and-answers/question?ref=s6w-00600

applicant is also unable to wholly implement either Option 1 or Option 2 - fisheries closures are a decision for Scottish Ministers and may require negotiations at an EU fisheries level and the UK Government assumes responsibility here. Without the derogation tests having been met, there is no option but to reject the application in its current form.

Ultimately, this failure to meet derogation requirements means the application must be rejected as to approve it would be contravening Regulation 48 (5) of the Conservation (Natural Habitats, &c.) Regulations 1994 (which is enshrined in Scottish law) because its compensation measures fail to not adversely affect the integrity of the European site. This would therefore, by default, also fail GEN 9 (a) of the National Marine Plan.

Signed on behalf of the following Link Members

Marine Conservation Society – Calum Duncan
National Trust for Scotland – Rebecca Millar
RSPB (Scotland) – Catherine Kelham
Scottish Seabird Centre – Susan Davies
Scottish Wildlife Trust- Jessica Jones
Whale and Dolphin Conservation – Anna Moscrop

Scottish Seabird Centre

Scottish Seabird Centre
The Harbour
North Berwick
EH39 4SS
T: 01620 890 202
info@seabird.org

For the attention of:
ms.marinerenewables@gov.scot

31 March 2023

Dear Emma

Berwick Bank Offshore Wind Development: objection

Our role

The Scottish Seabird Centre is a marine conservation and education charity, established in 1997 and opening its 5* visitor attraction in 2020. The Charity welcomes around 160,000 visitors through its doors each year and uses these opportunities, alongside our conservation, education and outreach activities, to inspire people to connect with and care for Scotland's seabirds and wider marine environment.

Through agreements with landowners, we have direct management responsibility for internationally important seabird colonies within the Forth Islands Special Protection Area (SPA) including Bass Rock, Craigleith and the Lamb. We also have arrangements for habitat management and/or public engagement at Fidra, the Isle of May National Nature Reserve and the Dunbar castle/harbour black-legged kittiwake colony. We have interactive wildlife cameras installed across these locations which help visitors to our Centre, or online, to engage with and learn about the seabird colonies without causing disturbance to them. Research is also conducted using these camera systems.

Our position on offshore renewables

We recognise that Scotland's seas are a great source of renewable energy and that offshore developments are an important strand of the Scottish Government's commitment to meeting the legally binding target of 'net zero' by 2045. It is however important that the locations chosen for, and the design and scale of offshore developments, do not significantly damage the marine environment and its wildlife – directly or cumulatively. In addition to the climate crisis, it is also recognised that we are facing a nature crisis and so it is important that developments do not contribute to further loss. The Applicant's Statement of Need fails to recognise the nature legislative and policy commitments at a Scotland, UK and International level, which are framed by a UN Global Biodiversity Framework which was agreed at COP15 in Montreal. Scotland has committed itself to the UN Framework. There should be a principle of net gain for nature from any consented development.

Objection to Berwick Bank Offshore Windfarm

We believe that Scottish Ministers cannot approve the application:

- without contravening Regulation 48 (5) of the Conservation of (Natural Habitats, &c.) Regulations 1994 as the proposed development is at a scale that will adversely affect the integrity of several Special Protection Areas (SPAs); and
- under Regulation 49 (1-2) we believe that insufficient evidence has been presented to demonstrate that there are no alternative solutions to the plan or project and therefore the overriding public interest tests cannot be applied.

Internationally important seabird colonies

Scotland is fortunate to support internationally important populations of breeding seabirds and attracts hundreds of thousands of visitors each year who make an important contribution to our rural communities and economy.

These internationally important seabirds already face a wide range of pressures including climate change, unsustainable fisheries, pollution, invasive species and disturbance from marine development/industries. The index of seabird populations in Scotland shows that Scotland has lost 38% of its breeding seabirds since the index began in 1986. This index of course masks the scale of some species-specific declines regionally and nationally with some, for example, black-legged kittiwake populations having declined in far greater numbers.

The recent devastating impact of highly pathogenic avian influenza on seabirds, including the Northern gannets on the Bass Rock – the world's largest colony - is another signal of the need to proceed on a precautionary basis. The nature crisis will not be reversed if developments which contribute to seabird declines are consented.

Our objection to the proposed development

The evidence presented in the Environmental Impact Assessment shows that the proposed development will have an Adverse Effect On the Integrity (AEOI) of several species and across several Special Protection Areas (SPAs). This is predicted to lead to population levels declining over the 35-year lifetime of the development with particularly concerning declines for black-legged kittiwakes, common guillemots and razorbills within the Forth Islands, Fowlsheugh and St Abbs to Fast Castle SPAs, in other words across significant parts of Scotland's East coast.

Combined with the cumulative impacts of other consented developments these are significant losses and we do not believe that the applicant has taken adequate steps to mitigate the impact through changes to the design and scale of the development. The combined effect with other North Sea developments, is also predicted to result in the SPA population for Northern gannets being 84.8-80% of what it would be in the absence of the wind farm. This does not take into account the devastating effect that HPAI has had on Northern gannets, especially on the Bass Rock.

When developments were consented in this spatial area in 2017 it was signalled that the environmental carrying capacity for seabirds was being approached. The Scottish Government's

statutory nature adviser – NatureScot - urged caution around developments in Development Plan Options E1 and E2 in the Offshore Wind Sectoral Plan without regional studies of seabird densities and SPA connectivity being undertaken.

Specifically, our **objection** to the proposed development is based on the following grounds:

i. The Applicant has presented insufficient evidence to adequately demonstrate that other sites within the ScotWind leasing areas are unsuitable for developments which would achieve, directly or in combination, the same energy output but with less environmental harm. The requirement at this stage of the Habitats Regulation is to establish whether there are less damaging alternatives, including floating technology which can be sited further offshore.
ii. The validity of the methods of gathering and interpreting the scientific data and the accuracy of seabird mortality figures, which do not adequately recognise scientific uncertainties. We challenge what is described as the "Developer Approach" used to argue that the impacts are less. Within environmental law the precautionary principle should be applied where there are significant scientific uncertainties and where there will be environmental harm. Trusted methodologies for undertaking assessments must be adhered to.
iii. The Applicant has not adequately addressed the issue of how coastal communities who rely on the marine environment socially and economically, such as coastal and marine tourism and low impact fisheries, will be impacted both during construction and operational phases of the development. Compensation measures for low impact fisheries need to be set out in the context of a fair transition.
iv. We disagree that the proposed compensation measures for seabirds are effective and represent additionality. This is expanded on below.

Adequacy of the derogation case

The proposed derogation case is flawed in several ways including:

i. *Sandeel fisheries* - Scottish Government committed to consulting on the future of sandeel management in Scottish waters and stated that the official position is not to support sandeel fisheries. Given this is already the Government's position and over a wider area than the proposed S4 we disagree that this is compensation measure is additional. The alternatives proposed to this measure are also not within the developers remit to deliver.
ii. *Biosecurity* – the proposed biosecurity measure, of rat control on Handa, will not directly benefit the species most affected by the development proposal, such as black-legged kittiwakes, nor address the impact on the stated conservation objective of the SPAs most affected. A national response that puts in place the long-term resourcing for a bio-security response plan for Scotland's seabird colonies, with a team to manage and implement this is required.
iii. *Dunbar Castle measures* – the additional nesting ledges proposed at Dunbar harbour may be feasible, although it is a historic harbour, and cliff nesting space is not the primary reason for the black legged kittiwakes decline. The suggested warden would bring local educational benefits through interactions with harbour users and visitors but again this is not a direct compensation measure.

Tourism

Tourism is an important part of the economy in East Lothian. We are aware that there is already considerable pressure on the availability of accommodation with many overnight beds being taken for contractors which reduces the amount of space available for holidaymakers (especially families). This can be exacerbated at times when the available accommodation is taken for major sporting events in the area. All of this has an effect on the visitor footfall to tourism attractions in the area. We do not believe that the evidence presented addresses or suggests adequate compensation for these effects to tourism providers.

We also have concerns about the impact of the scale of the development on the coastal landscape character. At the current scale (area and density of turbines) the development is described as having a "moderate" to "major" impact from the Torness to Eyemouth stretches of coastline. The Berwickshire Coastal path follows this coastline and the experience for walkers will likely be diminished.

Summary

We appreciate the amount of resource which goes into the preparation of the documents for a development proposal of this scale. Despite this we believe that the fundamental tests under Regulation 48 (5) and 49 (1-2) have not been met. We therefore must **object** to the proposal as currently detailed.

We are willing to continue a dialogue with the developer to find ways of reducing the scale of impact and to design, if still required, compensation measures which would be at a more appropriate scale, impact and duration.

Yours sincerely,
[Redacted]

Susan Davies
Chief Executive

Scottish Environment Protection Agency

From:	Planning South
To:	MS Marine Renewables
Subject:	FW: SEPA Ref: 7794 - Berwick Bank Offshore Wind Farm - Section 36 and Marine Licence Applications
Date:	17 January 2023 12:38:52

OFFICIAL

Please see the response below (previously sent to an incorrect email address)

Thank you

Silvia

OFFICIAL

From: Planning South
Sent: 17 January 2023 11:54
To: MS.MarineLicensing@gov.scot
Cc: MarineRenewables@gov.scot
Subject: SEPA Ref: 7794 - Berwick Bank Offshore Wind Farm - Section 36 and Marine Licence Applications

OFFICIAL

To whom it may concern

ELECTRICITY ACT 1989
MARINE (SCOTLAND) ACT 2010
MARINE AND COASTAL ACCESS ACT 2009
APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 (AS AMENDED), MARINE LICENCES UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE BERWICK BANK OFFSHORE WINDFARM, OFF THE COAST OF EAST LOTHIAN AND THE SCOTTISH BORDERS.

Thank you for the above consultation.

We understand the reason for consultation is environmental impact assessment (EIA). We provided a response to the scoping report on the 4 November 2021 (our ref: 3149) and provided pre-EIA advice to SSE in 2022 (including a meeting on the 24 March 2022). Having contacted SSE for clarification, we understand that this consultation is related to the offshore part of the project, while the consultation for the onshore part will be sent separately.

SEPA only provides comments in relation to the onshore aspects of offshore wind farms, therefore we refer you to the standing advice available in our guidance and will provide bespoke comments on the for the onshore aspects when consulted separately.

Based on the information provided, it appears that this application falls below the

thresholds for which SEPA provide site specific advice. Please refer to our standing advice and other guidance which is available on our website. In addition, please also refer to our SEPA standing advice for the Department for Business, Energy and Industrial Strategy and Marine Scotland on marine consultations available here.

If there is a significant site-specific issue, not addressed by our guidance or other information provided on our website, with which you would want our advice, then please reconsult us highlighting the issue in question and we will try our best to assist.

I trust these comments are of assistance - please do not hesitate to contact me if you require any further information.

Kind regards,
Silvia Cagnoni
Senior Planning Officer

Scottish Fishermen's Federation

Our Ref: MM/ 27/02

Your Ref:

27th February 2023

E-mail:

Scottish Fishermen's Federation
24 Rubislaw Terrace
Aberdeen, AB10 1XE
Scotland UK

T: +44 (0) 1224 646944
E: sff@sff.co.uk

www.sff.co.uk

Berwick Bank Offshore Wind Farm - Section 36 and Marine License Applications

The Scottish Fishermen's Federation (SFF) on behalf of the 450 plus fishing vessels in membership of its constituent associations, The Anglo Scottish Fishermen's Association, Fife Fishermen's Association, Fishing Vessel Agents and Owners Association, Mallaig & North West Fishermen's Association, Orkney Fisheries Association, Scottish Pelagic Fishermen's Association, the Scottish White Fish Producer's Association and Shetland Fishermen's Association, are pleased to respond to this consultation. The FIRs in the region and the chair of NECrIFG have also been consulted and agree.

The SFF objects to this license application and objects to the derogation proposed to offset the impacts of bird mortality caused by the development.

- The first reason is on the grounds of principle, as it would see the creation of a precedent that allows the redirection of responsibility for the damage inflicted to the environment (in this specific instance seabirds) from the perpetrator to another sector is disproportionate and does not align with the concept of a so-called "just transition".

- The second reason, more relevant to this specific case, is about the number of projected bird kills. We understand that the number of birds projected to be killed by the turbines is negligible if the methodology of the developer is to be acceptable. A consideration of the comparison of the potential loss to the fishing industry and a "monetised" value of the birds kills translated in loss of Natural capital shall be considered with the aim of evaluating a potential disproportion of effects.

- Finally, it is apparent that the projected benefits on birds' population promised by the developer largely outstripped the loss by an exponential degree. In case of the derogation being enforced, then a mechanism to assess the proportion of the benefits/losses caused by such a derogation in order to avoid the need of having customised derogations coming from different developers translating into a greater cumulative impact on the fishing industry.

The Derogation Case, Chapter 2.4, seems to imply that similar derogations have been passed in England. As far as the SFF is aware, there has not been a derogation awarded

transferring the environmental cost from the development to the fishing sector. Accordingly we would oppose setting such a precedent.
Again in the Derogation Case, on page 56, PROJECT IDENTIFICATION AND APPROVAL (2017 – 2020), the project accepts that there is headroom available, culminating in para 252 clearly stating that as turbines continued to grow there would be less fatalities. The SFF would therefore contend that the need for the derogation is becoming, by the developers own assessment, un-necessary.
Next, on page 58, paras 261 – 264, quite clearly state that the changes in the boundary, since the start of the development, have resulted in a reduction on bird displacement of 20%, again lessening the impacts and the need for the derogation.

Referring to the Offshore Planning Statement, its chapter 3.6.16 before the application discusses Scotland National Marine Plan (SNMP), and itemises the renewable policies but fails to give the fishing policies the same consideration, as they consider these impacts on fishing negligible.
The SNMP attempts to balance all marine related activities, but this application does not consider the importance of fishing to coastal communities, their activity, socio-economics and their heritage, as prescribed in the SNMP. The plan intends the impacts on fishing should be considered but the development simply denies these impacts which is contrary to SNMP.
Looking at the PAC report, chapter 5 and Derogation Case, chapter 1.7, 5.3, both allude to the consultation with SFF & FIRs in November 2020; however, neither note the universal disapproval of the proposed derogation. This undermines the concept of consultation where our objections were totally ignored, thus suggesting that it was merely a tick-box exercise.
Chapter 7.3, page 40, paras 195 – 197, of the Derogation Case, acknowledges the uncertainty around the construction of the next round of the farms and use that as a justification for building Berwick Bank Wind Farm. It's not their place to judge about the implementation capacity of the other developers, so this should be discounted. Also para 270 on page 61 is a poor plea to Scottish ministers to allow the developers to proceed with this development because SSER have the necessary background and experience, without any substantive backing.
The Derogation case PART C: IMPERATIVE REASONS FOR OVERRIDING PUBLIC INTEREST, defines as much reason for the development going ahead without the derogation as with. And the section 17.4. STEP 3 – ASSESSING THE FEASIBILITY OF POTENTIAL COMPENSATORY MEASURE OPTIONS relies on the opinion of 15 stakeholders on 13 sites in 9 MPA, which is hardly over-riding public interest. Nor do the statistics in Table 20 give rise to real concerns about the number of bird fatalities. The claim in para 414 about scallop dredging being a cause of mortality in sandeels has long been a discredited theory. The assumption in para 420 has no locus or clarity and should be ignored. Paras 421 & 422 have been dropped from serious ornithology as the science has proved fishing is not the cause of the bird mortalities. The options offered in para 424 on page 92 are disproportionate to the bird kill and the amount of impact the fishing industry has, so are not serious options. Further down the page SFF members are the backbone of the Fishing for Litter campaign, and the SFF has at various times been the single biggest non-governmental funder of said campaign, which should demonstrate that the industry is well aware of the problem and is part of the solution, therefore should not be penalised for others failings. I must make special mention

of the ridiculous consideration of management measures at Sula Sgeir, almost as far from the Firth of Forth as you can get!
This long distance virtue signalling is further displayed in table 22 on page 96, “Suspension of Scallop fishing in UK waters of the North Sea around Dogger Bank” which was an action with many facets not the simple explanation given. The final denouement of the derogation, in table 26 on page 111, displays just how disproportionate the developers proposal is, the minimum ratio being 8 but the maximum almost 165 times which is nonsensical other than to demonstrate how much more value the developer puts on birds than fishing.

The EIA vol 1 – non technical survey, paras 170 – 175 and paras 195 – 205, note that there are species of importance to commercial fisheries, and important nursery and spawning grounds. Despite that the claim is made that impacts are at worst minor adverse, there needs to be clarity on how “important” in fisheries terms becomes NEGLIGIBLE in EIA terms?
EIA vol1 – project description, on cable protection, at various points from page 13 onwards discusses concrete mattresses. The SFF notes that the use of these can lead to safety of working fishing vessels being compromised, so would expect the developer to give proper consideration to their use. In the same section, Table 3.18 notes 8 cables, giving length and depth, but the SFF would welcome clarity on the width of the disturbed sea-bed. In the same paper, regarding boulder clearance, given that an area of c6.5 million m2 is likely to be cleared, the application should be clear on the actions they will take with any boulders so as not to create safety problems for fishers, which will probably require a consent condition.
Moving to page 21, para 3.4.2 about vessels working in the area, only specifies these are post consent, but with experience the SFF would expect the developer vessels to utilise best practice pre-consent to contribute meaningfully to the attempt at co-existence. If this cannot be done they should not be consented. Looking at table 3.30, on page 25, regarding cables there is nothing to give the fishing industry any comfort about ensuring burial and monitoring, which is essential. Again a need for consent conditions.
Then to table 3.32, designed in measures, the lines for Commercial Fishing are mostly Health and Safety measures the developers would have to commit to in any case, but keeping fishing informed of their activity is not mitigation, nor should MS LOT accept it as such. Cable burial and surveys should be clear on the procedure for over-trawl trials and co-operating with the fishing industry to ensure safety is the highest priority with this work. The SFF welcomes the Code of Good Practice for contractors but would expect the code to be extended to vessels operating pre-consent to avoid conflict at all times.
In the section Socio-economic and tourism, speaks of opportunities and anticipated employment opportunities, which is not good enough, the developer must give more clarity on this. Similarly for the Supply chain line, neither of these give us much comfort. As regarding Community Benefit, the developer should do nothing until Scottish Govt finalises its review and produces guidelines on Community Benefit from Offshore power.
The EIA vol1, the NTS on page 14, para 159, describes the impacts on Ocean Quahogs as moderate adverse, despite them appearing in almost every offshore windfarm, but in contrast paras 161 – 175 on Fish & Shellfish ecology, impacts are described as “negligible to minor adverse” which just does not make sense? Para 199 seems to discount the scallop fishery in the area without demonstrating a knowledge of the cyclical nature of the fishery. Finally in this section, paras 200-201 rather simply ascribe the impacts as negligible to minor and offer no meaningful mitigation for the loss of access to the fishery.

Moving to comment on Chapter 9, Fish and Shellfish ecology, table 9.15, in the construction phase they assume 114 million square metres of "temporary" disturbance, followed in the Operation and Maintenance phase of almost 1million square metres of "Temporary" loss culminating in 34.5 million m2 during decommissioning. Since this is a new industry the SFF would contend that interference on this scale is not going to be temporary and could quite likely be more damaging to the environment and the ecology than the few birds which hit a turbine. There should be a consent condition to monitor the effects on commercial fisheries.
The SFF is more than concerned that despite there being much high level guidance (para 45 in 9.9.1) on assessing the impacts of development, the results on commercial fish rarely rise above negligible to moderate.
The SFF is also more than concerned that the entire round of 20 Scotwind projects were screened out of the scoping as they are going to have a huge impact on the North Sea, including that eastern area. The application should be refused on that basis alone.
The SFF believes that the developers are avoiding their responsibilities on the impacts described throughout the chapter, as it is quite clear there is a lack of science in the industry, particularly on EMF, Colonising of foundations, scour and cable protection, which work would be of great benefit to the renewables industry and Scotland.
The final objection for chapter 9 regards the developers tacit acceptance of monitoring diadromous fish, despite refusing over 10 years to engage in meaningful discussions of monitoring for commercial fish.
In the EIA, Vol 2, Chapter 12: Commercial Fisheries, Table 12.1 attempts to show how the development respects GP4 of the SNMP, on Co-existence. The SFF would object to the development on the basis of this, simply because the proposed derogation is the developer attempting to shift the cost of the environmental impacts they cause on birds, to a cost on the fishing industry. Nor do the "designed in measures" in Table 12.9 or in the outline FMMS actually mitigate the impacts on the fishing industry. There is of course the long standing principle that the polluter pays which should be applied.

Looking then at the claims regarding FP1, 2 and 3 are subject to the same vague wording about co-existence, claiming consultation with fishing has helped the developer create their FMMS, which is clearly an exaggeration when the outline FMMS has nothing that we could call mitigation in it.

In the para headed "Sea Fisheries, Interactions with other users" in the first bullet point claims that cables and other infrastructure have potential for short term displacement during installation. This totally ignores the possibility that the impact of these introductions to the marine environment could render access impossible. Bullet point 3 is an unsubstantiated theory, which (if the development is consented) should be put to the test to allow it to be proved one way or the other. Bullet point 4 highlights the fishing industry perception that developers pick and choose from FLOWW what suits their case.

In the para "Offshore Wind and Marine Renewable Energy, Interactions with Other Users" the first point is moot, as the developers have Crown Estate access to the seabed before they consult with fisheries, ie not inclusive, communication and mitigation strategies are simply a process which delivers for developers but not fishers. Point 2 the Crown Estate

group, FLOWW, may have developed best Practice Guidance, but despite the wish to foster good relationships between fishing and renewables the reality does not compare.

The following 2 points on Cables interactions avoid using the words “over-trawl trials” which in itself is a cause for objecting to the application. This is more important than any line in the FMMS, simply telling us the details of route and burial is not enough and without suitable consultation will leave us unable to raise the objection unless an appropriate consent condition is imposed.

The final piece on consultation does not sit easy with the fishing industry. Whilst there is no denying that the developer and SFF have had regular meetings, there is no way that I would describe them as “strategic”, and when reading Table 12.2 the SFF would contend that the developer has avoided answering many of the issues raised. This is glaringly obvious in the very first meeting noted, on 16/11/2021 where the first presentation on the derogation was given to fishers to unanimous disapproval. It is also highlighted by the response to the meeting of 15 December 2021 – N/A?
Considering how important the Derogation proposal is for this application, the only mention of it is fishers comments on 28/1/22, but nothing from the developers? Then the claim regarding the SFF Scoping response that the amended site boundaries and thus footprint is of benefit to commercial fisheries is totally unfounded. The only benefit that is obvious is to the developer having the protection of the Rochdale envelope, nothing for fishing! The SFF further objects to the developers stance on Community benefit, experience tells us that if not stipulated pre-consent it is inevitably produced to suit the developer.
Once again, in all the discussion of cables the “over-trawl trials” are not mentioned, requiring an objection until/if the developer agrees to this standard practice for safety. The SFF object to the constant trotting out of “designed in measures” as some sort of panacea to all the potential impacts on fishing.

The response on 4/2/22, repeated on 17/3/22, “it has been assumed that fishing will be able to continue within the Proposed Development array area and along the Proposed Development export cable corridor during the operation and maintenance phase” should not be given any credence. The developer has no way of knowing what the real impacts of construction and building will be on the seabed and thus fishing, indeed it is almost standard practice for developers to “aim” for 80% burial of cables, thus raising the possibility of 20% closed to fishing. It is also noted that MSS assume turbine spacing of 800m is sufficient to allow fishing to continue, which is not the position of many of our members. Further in the 4/2/22 it is clear that developers are not averse to leaving buried cables behind post de-commissioning, which is a dangerous proposal. As each farm of the current cohort is de-commissioned and is allowed to leave cables in, the next generation will inevitably face problems in safe burial. This will, naturally, grow exponentially until there is no longer any possibility of burial or fishing, which is surely totally contrary to the whole ethos of sustainable development.

Moving on to Table 12.3, the SFF has the same general comments on the need for clarity on restricted access, long term loss of access, displacement, co-existence, safety, snagging and over-trawl trials and reiterates the objection to the “designed in measures”. The clear refusal to consider the supply chain impacts, in the note of 9/3/21, and 5/2/21 is for the SFF

reason enough to deny consent. The values etc ascribed to fishing in the application are first sale, ie stop at the quayside. Most economists with a connection to the industry estimate that for every job at sea, there are created 5 jobs onshore, so assessing this factor is crucial to understand the socio-economics of the industry. On the same date, regarding decommissioning, the SFF refers to the statement in the last 2 sentences of the previous para regarding 4/2/22.

Finally on 5/2/21 MSS advice "over-trawlability", but the developers response is less than clear. This is unfortunate as every previous developer has engaged in a best practice over-trawl procedure to demonstrate safety, including SSER. Therefore, the SFF would like to see a Consent Condition to ensure that the trials happen in the tried and tested manner.

Looking now at 12.9. METHODOLOGY FOR ASSESSMENT OF EFFECTS, unfortunately chooses to use the ICPC guidelines which are most definitely an example of co-existence. Then 12.10 returns to the "Designed in measures" which the SFF do not accept are in any way mitigation for the developments impacts on fishing. Para 93 on page 45, should be clarified to show that the developer understands the cyclical nature of Scallop fisheries. There-after the focus of chapter 12 seems to be justifying the decisions that most of the fishery impacts are defined as negligible to minor, culminating in Table 12.16 which only proposes to monitor cable burial. The SFF would expect a licence condition to ensure a proper regime for monitoring commercial fisheries is in place.. The SFF object to the fact that Table 12.12 has no assessment of the 20 Scotwind projects, which should mean the application is refused.

The SFF therefore expects to see the developer produce an application which really addresses the fishing industry concerns to attempt to achieve co-existence. Throughout this response are various points showing the lack of substantive evidence and the need for clarity from the developer. If however it is decided to grant a licence there is a need for appropriate consent conditions to be applied.

[Redacted]

Malcolm Morrison
Fisheries Policy Officer
Scottish Fishermen's Federation

Sportscotland

From:	Kerry Gibson
To:	MS Marine Renewables
Subject:	FW: Berwick Bank Offshore Wind Farm - Section 36 and Marine Licence Applications - Consultation - Response Requested by 21 February 2023
Date:	01 February 2023 14:57:34
Attachments:	image001.png

Good Afternoon,

Thanks for the above consultation. I have reviewed the report and have consulted with RYAS and can confirm that **sport**scotland have no objections. RYAS comments were noted and taken account of at an earlier stage.

If you require any further assistance, please let me know.

Kerry Gibson | Planner | **sport**scotland
Doges | Templeton on the Green | 62 Templeton Street | Glasgow | G40 1DA

| m: [Redacted]
w: www.sportscotland.org.uk

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Scottish & Southern Electricity Networks

Scottish Hydro Electric Transmission Plc
10 Henderson Road
Inverness
IV1 1SN
e: felicity.arthur@sse.com
17/02/2023

The Scottish Government,
Marine Scotland Licensing Operations Team,
Marine Laboratory,
375 Victoria Road,
Aberdeen,
AB11 9DB

REF: Consultation response to Berwick Bank Wind Farm Marine Licence (0010189) Environmental Impact Assessment (EIA) Report

Dear Sir/Madam,

We welcome the inclusion and consideration of the Scottish Hydro-Electric Transmission Eastern Green Link 2 (EGL2) HVDC link project in the Berwick Bank Wind Farm Environmental Impact Assessment (EIA) report.

The Berwick Bank Wind Farm EIA report (section 17.12.1) notes that the EGL2 HVDC link installation corridor is 14km from the proposed development array area, and as such there will be no physical interaction between the two projects. However, the EIA (section 3.4.4) states that construction of the Berwick Bank Offshore Wind Farm will commence in 2025, lasting 'up to 96 months', this time frame will overlap with the installation window for the EGL2 HVDC link, the installation of which is planned to commence in 2025. As such, we would request that provision is made to ensure that SIMOPS are appropriately managed.

We would also like to request that we are made aware of any changes to the installation programme or working area that may occur over the course of the development and installation of the Berwick Bank Wind Farm.

Yours faithfully,

Molly Outhwaite

Signed on behalf of Scottish Hydro-Electric Transmission plc

Transport Scotland

Development Management and Strategic Road Safety
Roads Directorate

Buchanan House, 58 Port Dundas Road, Glasgow G4 0HF
Direct Line: 0141 272 7379, Fax: 0141 272 7350
gerard.mcphillips@transport.gov.scot

TRANSPORT SCOTLAND
CÒMHDHAIL ALBA

Emma Lees
Marine Scotland
Scottish Government
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

ms.marinerenewables@gov.scot

Your ref:

Our ref:
GB01T19K05

Date:
21/02/2023

Dear Sirs,

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 (AS AMENDED), MARINE LICENCES UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE BERWICK BANK OFFSHORE WINDFARM, OFF THE COAST OF EAST LOTHIAN AND THE SCOTTISH BORDERS.

With reference to your recent correspondence on the above development, we acknowledge receipt of the Offshore Environmental Impact Assessment Report (EIAR) prepared by RPS in support of the above development.

This information has been passed to SYSTRA Limited for review in their capacity as Term Consultants to Transport Scotland – Roads Directorate. Based on the review undertaken, Transport Scotland would provide the following comments.

Proposed Development

The proposed development of Berwick Bank Wind Farm (BBWF) comprises an offshore wind farm located in the outer Firth of Forth and Firth of Tay, approximately 37.8 km east of St. Abb's Head. The offshore export cables will make landfall at Skateraw on the East Lothian coast.

Transport Scotland was consulted previously on the Scoping Report for the BBWF connection to Branxton, East Lothian and provided comments in our email of 1st April 2022. In this, we concluded that the traffic effects could be scoped out of the EIA report for the Offshore element of the project on the basis that a Construction Stage Traffic Management Plan will be prepared post-consent. We stated that Transport Scotland would seek a condition for the CTMP when consulted on the EIAR.

A further response on the proposed connection from the BBWF to Blyth in England (known as the Cambois Connection) was issued by us in our letter dated 20th December 2022, again confirming that traffic effects could be scoped out of the EIA report for the Offshore element of the project and reiterating that a CTMP would require to be prepared post-consent.

Assessment of Environmental Impacts

We note that the EIAR indicates that a separate application will be submitted for the onshore elements of the Project, and that based on Scoping Opinions received, the topic of Traffic and Transport has been scoped out of the assessment.

We can confirm, therefore, that Transport Scotland has no comment to make on the Offshore EIAR but would request that the following Condition be imposed on any consent that may be granted. This is in keeping with previous discussions with the applicant team.

Condition 1: Prior to commencement of deliveries to site, a Construction Traffic Management Plan must be submitted to and approved by Transport Scotland to ensure that general construction traffic and abnormal loads can be transported along the trunk road network safely and efficiently.

Reason

To minimise interference and maintain the safety and free flow of traffic on the Trunk Road as a result of the traffic moving to and from the development.

I trust that the above is satisfactory and should you wish to discuss any issues raised in greater detail, please do not hesitate to contact me or alternatively, Alan DeVenny at SYSTRA's Glasgow Office on 0141 343 9636.

Yours faithfully

[Redacted]

Gerard McPhillips

Transport Scotland
Roads Directorate

cc Alan DeVenny – SYSTRA Ltd.

UK Chamber of Shipping

Marine Scotland Marine Renewables
MS.MarineRenewables@gov.scot

30 Park Street
London
SE1 9EQ

rmerrylees@ukchamberofshipping.com
020 7417 2843

23 February 2023

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 (AS AMENDED), MARINE LICENCES UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE BERWICK BANK OFFSHORE WINDFARM, OFF THE COAST OF EAST LOTHIAN AND THE SCOTTISH BORDERS.

Dear Marine Scotland,

The UK Chamber of Shipping (hereafter "the Chamber") welcomes the opportunity to respond to the Application for Consent for Berwick Bank Offshore Wind Farm. The Chamber is the trade association for the UK shipping industry, representing some 200 members, operating 900 vessels equalling 18 million GT in capacity, trading around the UK and globally. The Chamber represents the full breadth of the industry, including dry and wet trades, passenger transport (cruise & ferry), offshore supply and construction, towage, and specialist, as well as professional service providers with shipping interests.

The Chamber fully supports the Government's obligations to achieve Net Zero by 2050, 2045 in Scotland, and welcomes the development of offshore renewable energy to succeed at this. The ports and shipping industries play an essential in enabling those targets to be achieved by providing bases and vessels for construction, operation & maintenance, and decommissioning. The Chamber also asserts that the planning and consultation system must support both the UK's offshore renewable goals and the wider shipping industry to ensure that navigational safety is not compromised nor economic contribution from the shipping industry jeopardised.

The Chamber has engaged with consultation phases of Berwick Bank planning process and welcomes amendments that have been put forward by the developer to the proposed development yet remains concerned that some areas remain to be addressed where navigational concerns exist.

The Chambers comments are limited to Volume 2, Chapter 13: Shipping and Navigation, Appendix 13.1: Navigational Risk Assessment, and Appendix 13.1: Shipping and Navigation Road Map, however recognises that in doing so it may have overlooked important or pertinent information elsewhere in the application.

Navigational Risk of the Proposed Inch Cape Berwick Bank Corridor

Following navigational safety concerns raised by the Chamber, MCA and other stakeholders regarding the unacceptable gap between Inch Cape and Berwick Bank, the developers undertook to reduce the Red Line Boundary (RLB), yet undertook this redefining without consultation of the Chamber or operators as to what would be a suitable redefining in terms of sea room for safe navigation.

The Chamber was presented these RLB amendments July of 2022 yet no analysis nor detail on future routeing cumulative risk was provided. The Chamber acknowledges that the redefined gap now meets with the requirements of MGN 654 and PIANC but has safety reservations.

Whilst the reduction in the RLB is undoubtedly welcomed by navigational stakeholders, the Chamber still has strong navigational safety concerns regarding the gap between the developments. Whilst the Chamber does not dispute it is in accordance with MGN 654 requirements, the presence of four wind farms in close proximity provides for a uniquely different scenario than a corridor between two developments and with recognition of the cumulative impacts, the Chamber wrote to the developers in August 2022 strongly recommending that a navigational simulator exercise be carried out with a number of Masters from vessel operators to consider safe routeing in across a range of routes in varying weather conditions. The Chamber has seen the navigational exercise be utilised to exemplary effect by other developers for other projects where multiple developments are in varying stages of planning and construction to test and validate deviations and future case routeing assumptions.

Where the technique has been used, it identified hazards and difficulties which were previously not considered or deemed to be minimal, with the result being that in some weather conditions, routes were unpassable and alternatives with significant deviation were required in order to keep crew, vessel, cargo and passengers safe.

The Chamber was therefore disappointed to learn from the developers that they did not consider any necessity for navigational simulator assessment and rebuffed the Chamber's suggestion. The developer referenced a substantial change to the extent of the array area, yet much of the RLB reduction was undertaken as identified by Berwick Bank Wind Farm Project Director Alex Meredith "to reduce potential environmental effects – particularly in relation to ornithology." Source: https://www.sserenewables.com/news-and-views/2022/06/sse-renewables-makes-final-changes-to-berwick-bank-boundary/ and not of direct relevance to navigational receptors.

The Chamber therefore continues to have navigational safety concerns around future routeing and the gap between Inch Cape and Berwick Bank, and calls on Marine Scotland to recommend the developer to undertake full and detailed analysis via a navigational simulation exercise for vessels transiting though the area. This is particularly merited given comments from Forth Ports amongst others about the severity of the adverse weather it the area and representations by Evergas.

Steaming distances from Wind Farms

Under 13.7.2.36 it is stated that "it is assumed that alternative routes will typically maintain a minimum mean distance of 1nm from future wind farm structures in line with industry experience."

The Chamber would assert that the industry best practice as stated within Witherbys Passage Planning Guide is to pass at a minimum mean distance of 2nm from wind farms. This is especially true for larger vessels, vessels carrying potentially hazardous cargoes (for examples tankers), and non-regular visitors who are unfamiliar with the waters. This was exemplified by Evergas in their email representation from 5 October 2021, which stated:

"As a gas carrier, significant precaution is taken including allowing for unforeseen machinery failure. Therefore, keeping close to shore or utilising the navigation corridor between the Proposed Development array area and Inch Cape would result in a difficult situation in such an event. The longer alternative is considered safer and would be used."

The Chamber acknowledges that this representation was made by Evergas prior to the amendment to the RLB, but sees no confirmation that further engagement with Evergas as to suitability of the new corridor would be to their satisfaction for navigational safety. Without this, it cannot be deemed that the new gap is of sufficient width for all vessels and that large deviations with resulting economic and environmental consequences remain.

Seagreen & Berwick Bank Corridor Width

The Chamber would like to raise concern that whilst the developer has considered the gap between Inch Cape and Berwick Bank and found it to be deemed satisfactory under the MCA and PIANC Guidance, the Chamber wishes to raise that a separate corridor has been entirely overlooked with navigational safety concerns.

Between Seagreen and Berwick Bank there is an approximately 16nm long corridor running east – west for which no corridor assessment has been completed. Following the MCA guidance as detailed with MGN 654, any corridor between wind farms should allow for at least 20 degree deviation. In this instance therefore a 16nm long corridor should have a minimum width of 5.82nm.

The Chamber is aware that that the western extent of the corridor is approximately 5.5nm and so almost compliant, yet the eastern extent is significantly less at approximately 3nm. As identified within the NRA there is a route that utilises this passage and with respects to the future routeing it is quite possible that given significant required deviations to the south for some other routes, it may become a more used route.

The Chamber resultingly has concerns for navigational safety and calls for that Marine Scotland require the developer to adhere to the MGN guidance for corridors between wind farms. In not doing so a there is a risk to safety and a precedent set for the erosion of importance guidance in the maritime environment in the build out of offshore renewables in the UK EEZ.

Array Area

Within Appendix 13.2 Shipping and Navigation Road Map the developer asserts that no objections to the maximum design scenario have been received, including the full build out of the Proposed Development array area.

The Chamber would like to contradict this and say that it has raised concerns around navigational squeeze and proximity to other wind farm developments in a cumulative approach, and through raising of concern around the cumulative picture and requesting detailed analysis be carried out, the Chamber is implicitly objecting to the full build out the

potential array area. Had the Chamber be asked whether it objected to the full build out of the array area it would have responded affirmatively.

The Chamber is engaged with many consenting processes for offshore wind developments and has recognised that the agreed generating density, i.e. MW per km2 has steadily increased with agreements with developers regularly reaching generating densities in excess of 5 MW per km2 and a maximum of 6.74 MW per km2.

For Berwick Bank to be consented with a generating density of 4.05 MW per km2 is unnecessarily impacting upon navigational stakeholders by removing additional navigable sea room for other activities. Furthermore, from a holistic perspective for the ongoing build out of offshore renewables in the UK's route to reach net zero and produce as much energy from offshore green resources, perhaps 130 GW of offshore wind by 2050, such excessive use of space should be consented without detailed scrutiny by the consenting body.

The Chamber therefore strongly recommends that Marine Scotland require one of the following:

1) A reduction the Red Line Boundary prior to consent to leave more available sea room for other marine activities
2) Require the developer, following completion of geotechnical and geophysical survey work, to reduce the built array area and provide the unused area back for alternative marine development

From the perspective of commercial navigational stakeholders, were Marine Scotland to recommend a reduction in RLB prior to consent, the Chamber would welcome a reduction in two areas:

1) redefining of the western extent of the RLB inward, particularly at the north west corner to provide for greater sea room
2) increasing of the navigable sea room between Seagreen and Berwick Bank

Economic and Environmental Impacts

Under the UK Marine Policy Statement Paragraph 3.4.7 it states that environmental, social, and economic effects should be taken into account. Similarly, under Scotland's National Marine Plan 2015 Policy Transport 6 states, "Developers should ensure displacement of shipping is avoided where possible to mitigate against potential increased journey lengths (and associated fuel costs, emissions and impact on journey frequency)".

The Chamber finds the analysis on fuels costs and emissions this within Volume 2, Chapter 13: Shipping and Navigation to be inadequate and state little more than there will be impacts upon scheduling and increased fuel costs for shipping, which are asserted to be minor. The Chamber does not find any analysis presented for them to arrive at the consequence that the impact will be minor and calls for proper analysis to be conducted on this impact.

At paragraph 304 of Chapter 13 it states,

"the most likely consequences are increased journey times and distances leading to the environmental consequence of increased fuel consumption. There is also potential for the business consequence of disruption to schedules, and although changes in total route length may be possible to make up through increased speeds when in open seas and effective passage planning, the deviations are generally slightly greater than for the equivalent impact for the Proposed Development in isolation. This is particularly relevant for vessels where utilising the proposed navigation corridor between the Proposed Development array area and Inch Cape may not be considered suitable."

The Chamber agrees with the statement but would assert that this does not amount to meaningful analysis of the consequence particularly for cost or environmental impact.

The Chamber also recognises that acknowledgement in the paragraph that the proposed navigation corridor between the Proposed Development array area and Inch Cape may not be considered suitable by some vessels and would assert that if this is recognised as such then a simulator exercise should be undertaken to ascertain why and what scale the gap should be for it to be suitable.

The Chamber has reviewed the Socio-Economic chapter but again finds no analysis nor detail as to these impacts and so requests more analysis in this area.

Future Traffic

Under 13.7.2.37 it is stated that Forth Ports have no terminal or berth changes planned. This is incorrect as evidenced by the Planning Application ongoing for Leith and the recent shortlisting of Forth as a potential freeport. As such these developments have the potential to mean significant increases in vessel activity and traffic, not least from the fabrication and tow out of significant numbers of floating offshore wind turbines which will have restricted manoeuvrability due to the towing arrangements.

Allision Risk

Regarding the cited historical incident data, whilst it is correct that no drifting allision incidents involving third-party vessels alliding with an operational wind farm structure have been reported within the UK, a serious incident has occurred in the Southern North Sea close to the Netherlands. It is recognised that a bulk carrier broke free from anchor in a storm, collided into another vessel and allided into a turbine and monopile foundation which suffered “significant damage”. The bulk carrier suffered damage to the hull and was making water as the 18 crew were evacuated. Of further important relevance is that a joint venture between Vattenfall, BASF and Allianz has invited contractors to bid for the removal of the Hollandse Kust Zuid offshore wind turbine foundation, https://safety4sea.com/wind-farm-foundation-to-be-removed-after-julietta-d-collision/. As such this denotes the significance of the consequence of an allision risk and should be considered.

Conclusion

The Chamber has detailed its concerns regarding navigational safety and hope that they may be fully considered and would be happy to discuss any of them in greater detail with Marine Scotland.

Yours faithfully,

Robert Merrylees
Policy Manager (Nautical & Safety)

UK Chamber of Shipping
rmerrylees@ukchamberofshipping.com