Representations

Aberdeenshire Council

Aberdeenshire COUNCIL

Our Ref: ENQ/2024/1800
Your Ref:

Ask for: [Redacted]
Tel: 01467 533406
Email: [Redacted] @aberdeenshire.gov.uk

Scottish Government
Marine Laboratory
Aberdeen
AB11 9DB

15 January 2025

Dear Sir/Madam

Marine Licence Consultation for Consultation under Section 36 of the Electricity Act 1989, the Marine (Scotland) Act 2010 and Marine and Coastal Access Act 2009 for the Erection of Offshore Wind Farm and Associated Infrastructure at Muir Mhòr Offshore Wind Farm, Peterhead

Thank you for you consultation request concerning the Muir Mhòr Offshore Wind Farm proposal.

As we are yet to receive any application regarding terrestrial works in connection with this overall project, our response is based purely on the submission which primarily relates to offshore works. The offshore EIAR has been assessed and the comments listed below reflect the key areas of interest for Aberdeenshire Council.

Natural Heritage
Comments on this consultation are limited to the intertidal zone where this overlaps with the
onshore element of this overall development.

The cables from the offshore windfarm are to be brought ashore using horizontal directional drilling (HDD) therefore there will not be any direct disturbance of the intertidal zone.

It is noted that some disturbance of birds using inter-tidal is anticipated from vessels associated with the offshore works, however it is considered to be of minor significance and temporary during construction. No long-term significant adverse impact is anticipated. The conclusion in relation to inter-tidal ornithology is considered acceptable.

In relation to intertidal ecology it is expected that there would be a temporary increase in suspended sediments due to the drilling activity associated with the cable installation however this would only reach the intertidal zone at high tide and will largely disperse within the water column before it reaches the intertidal zone. No significant adverse impact

is anticipated. The conclusion in relation to inter-tidal ecology is considered acceptable. The coastal path from Peterhead to Fraserburgh utilises the beach at this point. While this is within the intertidal zone, bringing the cables ashore using HDD will not result in any direct adverse effect on the route. As part of the documentation related to the onshore development, the applicants have developed an Outline Access Management Plan which is acceptable. No significant adverse effect is anticipated. The conclusion in relation to non-motorised access (core paths) is considered acceptable.

Archaeology

The Archaeology Team has confirmed that they are happy with the proposed archaeological mitigation outlined in the supporting documents (Marine Archaeology and Cultural Heritage chapter (chapter 15,dated November 2024)). They are content with the mitigation outlined in section 15.6, table 15-11 and the Outline Written Scheme of Investigation (Volume 4, Appendix 8). A Programme of Archaeological Works condition (included below) is recommended to be applied to capture this mitigation requirement should the application be minded for approval.

Programme of archaeological works

No works in connection with the development hereby approved shall commence unless an archaeological written scheme of investigation (WSI) has been submitted to and approved in writing by the planning authority and a programme of archaeological works has been carried out in accordance with the approved WSI. The WSI shall include details of how the recording and recovery of archaeological resources found within the application site shall be undertaken, and how any updates, if required, to the written scheme of investigation will be provided throughout the implementation of the programme of archaeological works. Should
the archaeological works reveal the need for post excavation analysis the development hereby approved shall not be occupied or brought into use unless a post-excavation research design (PERD) for the analysis, publication and dissemination of results and archive deposition has been submitted to and approved in writing by the planning authority. The PERD shall be carried out in complete accordance with the approved details.

Reason: To safeguard and record the archaeological potential of the area.

Given the overall distance between the proposed siting of the turbines and land fall with Aberdeenshire it can be concluded that it is unlikely for any adverse impact as a result of the offshore elements of this overall project to be experienced by Aberdeenshire either individually or on a cumulative basis. Aberdeenshire Council therefore makes no objection to the proposal. I trust this provides a clear response however please do not hesitate to contact me on the above contact details should you wish to discuss any matters further or have any other queries.

Yours faithfully

[Redacted]

Aberdeen International Airport

Aberdeen International Airport

Aberdeen International Airport Limited
Dyce, Aberdeen
AB21 7DU
Scotland

T: +44 (0)870 040 0006
W: aberdeenairport.com

FAO [Redacted]
Marine Directorate

Via Email

ABZ Ref: ABZ3302

4th February 2025

Dear [Redacted]

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND A MARINE LICENCE UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND PART 4 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE THE MUIR MHÒR OFFSHORE WINDFARM, APPROXIMATELY 63 KM OFF THE COAST OF PETERHEAD

I refer to your consultation request received in this office on 6th December 2024.

The proposed development has been examined from an aerodrome safeguarding perspective and could conflict with safeguarding criteria. Accordingly, a more detailed assessment requires to be undertaken regarding the potential impact on Aberdeen Airport.

Whilst every effort will be made to reply as soon as possible, we may not be able to reply within 21 days of receipt of your consultation request. We, therefore, submit a holding objection until we are able to advise you of the results of our investigations.

You should note that where a Planning Authority proposes to grant permission against the advice of Aberdeen Airport, it shall notify Aberdeen Airport, the Civil Aviation Authority and the Scottish Ministers as per Circular 2/2003: Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) (Scotland) Direction 2003.

Yours Sincerely
[Redacted]

Safeguarding Manager
Aberdeen Airport
07808 115 881
abzsafeguard@aiairport.com

Aberdeen International Airport Limited
Dyce, Aberdeen
AB21 7DU
Scotland

T: +44 (0)870 040 0006
W: aberdeenairport.com

FAO [Redacted]
Marine Directorate

Via Email

ABZ Ref: ABZ3302

13th February 2025

Dear [Redacted]

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND A MARINE LICENCE UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND PART 4 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE THE MUIR MHÒR OFFSHORE WINDFARM, APPROXIMATELY 63 KM OFF THE COAST OF PETERHEAD

I write in relation to the above application.

The proposed development has been examined from an aerodrome safeguarding perspective and does not conflict with safeguarding criteria. We, therefore, have no objection to this proposal.

Yours Sincerely
[Redacted]

Safeguarding Manager
Aberdeen Airport
07808 115 881
abzsafeguard@aiairport.com

Angus Council

From:	**[Redacted]**
To:	MD Marine Renewables
Subject:	RE: Muir Mhor Offshore Wind Farm Limited – EIA, Section 36 consent and Marine Licence Applications - Consultation – OUR REF: 24/00612/PREAPP
Date:	12 December 2024 09:29:29
Attachments:	image001.png

Dear Judith,

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

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND A MARINE LICENCE UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND PART 4 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE THE MUIR MHÒR OFFSHORE WINDFARM, APPROXIMATELY 63 KM OFF THE COAST OF PETERHEAD.

I refer to your email below and can confirm this service has no comments to make in relation to the development proposed in so far as its potential impacts upon Angus.

Yours sincerely,

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

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Visit our Facebook page

BT

From: radionetworkprotection@bt.com
To: MD Marine Renewables
Cc: [Redacted]
Subject: WID13704 - Muir Mhor Offshore Wind Farm Limited – EIA, Section 36 consent and Marine Licence Applications - Consultation – Response Required by 4 February 2025
Date: 30 January 2025 13:41:50
Attachments: image004.png
image006.png
image007.png

BT Group

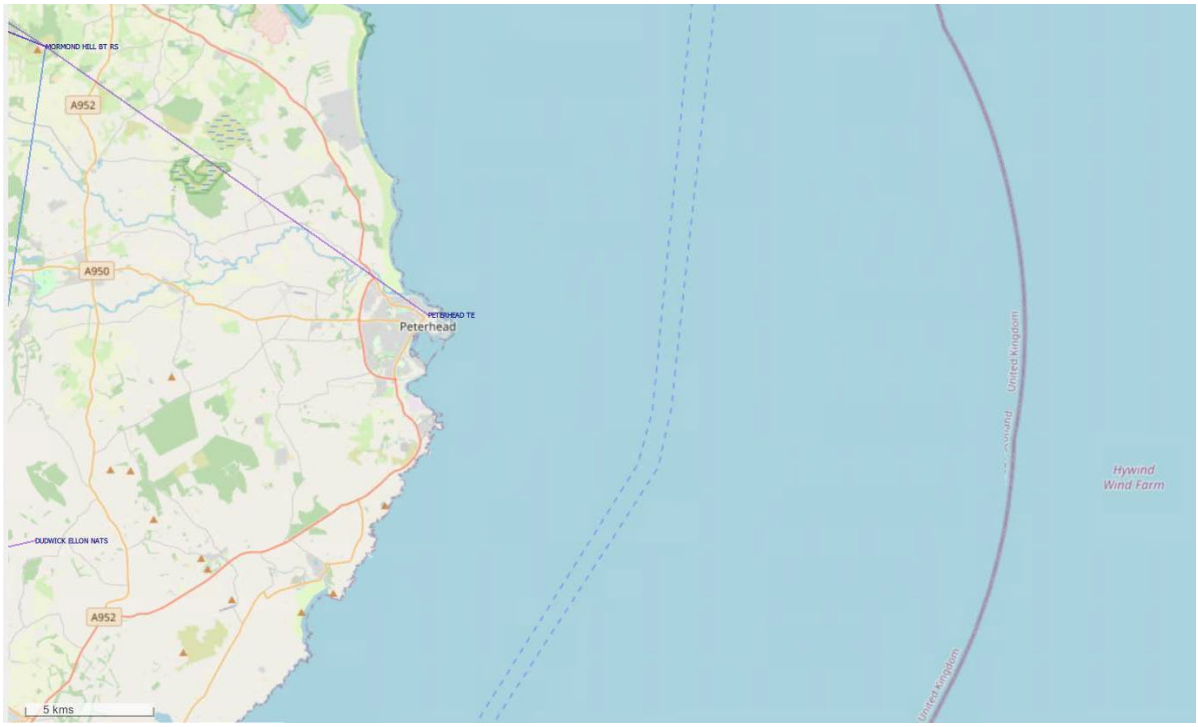
OUR REF; WID13704

Thank you for your email dated 06/12/2024.

We have studied this Offshore Wind Farm proposal with respect to EMC and related problems to BT point-to-point microwave radio links.

The conclusion is that the proposed location of the Muir Mhór Offshore Wind Farm should not cause interference to BT's current and presently planned radio network.

The scoping report states that the Developer plans to submit a separate application for the onshore element which we will access separately once submitted and received by BT.



BT requires 100m minimum clearance from any structure to the radio link path. If the proposed locations change, please let us know and we can reassess this for you.

Please note this refers to BT Radio Links only, you will need to contact other providers separately for information relating to other supplier links / equipment.

Please direct all queries to radionetworkprotection@bt.com

Kind regards

[Redacted]
National Radio Planner
Network Planning

E: radionetworkprotection@bt.com

BT Group

Department of Agriculture,
Environment and Rural Affairs

From:	DAERA Marine Information Requests
To:	MD Marine Renewables
Subject:	RE: CM: Muir Mhor Offshore Wind Farm Limited – EIA, Section 36 consent and Marine Licence Applications - Consultation – Response Required by 4 February 2025
Date:	04 February 2025 15:30:02
Attachments:	image001.png image002.png

Hi
This is a nil response from MFD. Thanks
[Redacted]

[Redacted] | **Marine Plan Team** | Department for Agriculture, Environment and Rural Affairs
Ground Floor | Clare House | 303 Airport Road West | Belfast | BT3 9ED
Contact: **[Redacted]** **@daera-ni.gov.uk** | **Tel:** (**[Redacted]** | **DD:** 69262.

DAERA (SeabORD model response)

Muir Mhor Section 36 Application - SeabORD Issues

Marine Conservation

Comparing the project area and the foraging ranges from the Northern Ireland SPAs, the following should be assessed within the RIAA.

Copeland Island SPA – Manx Shearwater – these are mentioned in the EIA report but not carried over to the HRA report to inform appropriate assessment so has not been assessed.

East Coast Marine pSPA – Manx Shearwater – this proposed SPA is not mentioned in either report, as the designation overlaps with the Copleland Island SPA population the conclusions would be the same.

Rathlin Island SPA – Fulmar – The array is within foraging range of Rathlin Fulmar which are an assemblage species component of the SPA. They are not included on either reports.

The above designated features should be accounted for in RIAA but they are not. However, we expect the screening assessment to show no LSE.

Dee DSFB

Dee District Salmon Fishery Board

[Redacted]
Marine Licensing and Consenting Casework Officer
Licensing Operations Team
Marine Directorate
Scottish Government
Marine Laboratory
Aberdeen
AB11 9DB

By email to MD.MarineRenewables@gov.scot
4rd February 2025

Dear [Redacte

Muir Mhor Offshore Wind Farm Limited – EIA, Section 36 consent and Marine Licence Applications - Consultation

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 AND A MARINE LICENCE UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND PART 4 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE THE MUIR MHÒR OFFSHORE WINDFARM, APPROXIMATELY 63 KM OFF THE COAST OF PETERHEAD.

On behalf of the Dee District Salmon Fishery Board (Dee DSFB) we welcome the opportunity to respond to the ***Muir Mhor Offshore Wind Farm Limited – EIA, Section 36 consent and Marine Licence Applications - Consultation***

Designations & Conservation Status

As a statutory body charged with the protection of Atlantic salmon and sea trout stocks within its district, the Dee DSFB has a duty to ensure that there are no significant adverse impacts upon the populations of these species.

The Dee has been designated as a Special Area of Conservation under the EC Habitats Directive 92/43 EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna for Atlantic salmon (the principal species for which it receives this designation). The Dee District also supports populations of trout, eels and brook, river and sea lampreys.

Sea trout, common to all the rivers within the Dee District, are a priority species under the United Kingdom's Biodiversity Action Plan (UKBAP).

All lamprey species are protected under the EC Habitats Directive whilst river and sea lampreys are additionally protected under the UKBAP priority list.

Eels are a UKBAP priority species, critically endangered under the IUCN red list and protected under CITES.

Wild Salmon Strategy and Conservation regulations

At the latest International Union for Conservation of Nature (IUCN) species reassessment of the Red List of Threatened Species, released at COP28 in December 2023, Atlantic salmon have been reclassified from 'Least Concern' to 'Endangered' in Great Britain (as a result of a 30-50% decline in British populations since 2006 and 50-80% projected between 2010-2025), and from 'Least Concern' to 'Near Threatened' in terms of global populations (as a result of global populations declines of 23% since 2006).

In January 2022, the Scottish Government released its Wild Salmon Strategy which gave a clear message that there is sadly now unequivocal evidence that populations of Atlantic salmon are at crisis point. The Strategy calls on government agencies, as well as the private sector, to prioritise the protection and recovery of Scotland's wild Atlantic salmon populations.

One of the key pressures identified in the strategy is marine development, with marine renewables highlighted as having the potential to impact salmon through noise, water quality and effects on electromagnetic fields (EMFs) used by salmon for migration.

Furthermore, the Conservation of Salmon (Scotland) Regulations 2016 has led to the production of stock assessments for all Scottish salmon rivers, based on catch data. The assessments estimate whether the number of adults returning to the river in each of the previous five years will produce enough eggs to keep the population size above a critical threshold.

For the Dee, like other north-east rivers, the assessments have shown a declining trend in catches since 2011. Nonetheless, the Dee has been categorised as a Grade 1 river, meaning that the stocks have most likely been above the critical threshold - the Conservation Limit - over the last five years. It

is however apparent that specific stock components, such as the Spring salmon stock on the Dee are critically low.

For the Cowie and Carron the two other catchments in our district, the assessments have also shown a declining trend in catches since 2011. Both have been categorised as a grade 3 river according to these government regulations since their publication, meaning that the stocks have most likely been below the critical threshold - the Conservation Limit – since 2016.

The conclusion from this assessment reflects the decline seen in the Cowie and Carron stocks and illustrates that the number of salmon returning to the Cowie and Carron is currently insufficient to maintain a stable population. A category 3 grading defines the stock as unsustainable, therefore management actions are required to protect stocks.

Assessment of the juvenile salmon stocks in the Dee, Cowie and Carron through the National Electrofishing Programme for Scotland (NEPS) has evaluated juvenile stocks in the Dee as Grade 2 and Grade 3 respectively suggesting that there are significant issues with recruitment and survival within the catchment (Malcolm *et al* 2020). With greater pressures on marine survival such that only approximately 3% of smolts return to the river as adults, we need to address any pressures within the freshwater and marine environments to protect Dee, Cowie and Carron salmon stocks.

Position

The Dee DSFB welcomes the opportunity to respond to the consultation and would wish to be consulted further during this process with specific interest in the migratory fish species Atlantic Salmon and sea trout. We echo the comments of our representative body for Scotland's District Salmon Fishery Boards, Fisheries Management Scotland and call for more research upon the impacts of this development on diadromous fish.

Under Scottish Marine Energy Research (ScotMER), the Diadromous Fish Receptor Group has identified evidence gaps related to the health, distribution, and impacts on Diadromous fish (salmon, sea trout, etc.). Scottish Government has published an 'evidence map' (available for download at the above link) which identifies and scores these evidence gaps according to a specific prioritisation process. A recent report commissioned by Scottish Government titled "Diadromous Fish in the Context of Offshore Wind – Review of Current Knowledge & Future Research" highlights further strategic research opportunities and areas for consideration.

It is important that the relevant evidence gaps are considered in full by the applicant, and developers should contribute to filling these evidence gaps as a **specific condition of consent**.

To properly assess Environmental Statements for developments, information on the use of the development area by diadromous fish should be provided. If such information is lacking then a suitable monitoring strategy should be devised, either for the area in question or through contributing to strategic projects undertaken through ScotMER. Any monitoring strategies must include pre-construction monitoring in order that baseline information on movement, abundance, swimming depth, feeding behaviour etc. can be collected.

Offshore developments have the potential to directly and indirectly impact diadromous fish. We would therefore expect developers to assess and, where necessary, mitigate the potential impacts of the development. These potential impacts have been highlighted through ScotMER, and include:

- Avoidance (including exclusion from particular rivers and subsequent impacts on local populations);
- Disorientation effects that could potentially affect behaviour, susceptibility to predation or by-catch; and
- Impaired ability to locate normal feeding grounds or river of origin; and delayed migration

Whilst we appreciate the large volumes of technical data and reports supporting this application there is still little evidence upon which to base many of the assumptions made on likely significant effects of the development on diadromous species such as Atlantic salmon and sea trout. We still feel that there should be a concerted effort to minimise impacts on these species at all stages of life and all stages of development. We would urge developers to use the precautionary principle to prevent any damage to the Atlantic salmon and sea trout as a result of this development where evidence otherwise is lacking.

The following issues should therefore be considered in full, including consideration of new research where information is lacking:

i. *Subsea noise and vibration effects during construction*

   This includes noise associated with horizontal directional drilling and installation of rock armour on cable routes. Avoidance of such activities during key life stages, such as the smolt run, should be considered as a mitigation measure. The extent across the site and distance travelled by underwater noise from the development could have bearing upon our migratory species which we are not yet aware off. Further to this the cumulative impacts of multiple windfarm sites being developed at once could have greater ramifications on migration pathways which must be considered fully in conjunction with other developers.

ii. *Electromagnetic fields (EMFs) arising from cabling*

   Electromagnetic fields from subsea cables have the potential to interact with European eels and possibly salmonids if their migration or movement routes take them over sub-sea cables. The Earth's magnetic field is a cue used for migration, so anything that interferes with this signal is an important consideration. All cables should be buried to at least a depth of 1.5m where possible or covered with rock armour to an equivalent depth where burial is not possible.

   With floating wind turbines there is an inherent challenge posed by inter-array cables connecting to turbines and then to offshore electrical platforms in that they are exposed on their rout from the seabed to the floating turbine. In total there is over 250km of inter-array cables, and a 90km export cable group associated with the development.

   We are aware that Marine Scotland Science have undertaken some research to investigate electro-magnetic force impacts on adult and post smolt salmon and European eels. Whilst for salmon this work did not demonstrate any significant response to the magnetic field in terms of alarm, avoidance, accelerated or decelerated swimming, it did not provide any information

on interference with the salmon's ability to detect and utilise the Earth's magnetic field. We would request further evidence is built on this topic to understand the potential impacts in the field.

iii. *Disturbance or degradation of the benthic environment (including secondary effects on prey species)*

It is important to ensure that such effects are quantified and assessed in the Environmental Statement. Consideration should be given to potential effects on important habitats for feeding and shelter for the marine phase of sea trout (a priority marine feature) and any area that might impact early feeding opportunities for all diadromous species. Further consideration should be given to the duration at which sea trout spend in the nearshore environment when compared to other migrating salmonids. The reports suggest that salmon post smolt migration is expected to be relatively swift through the development area, whilst this is not the case for the developing post smolt sea trout destined to remain in development area during its early marine life which could cover any one of the phases of development.

iv. *Changes in light patterns from turbine blades*

Potential impacts from changes in light patterns from turbine blades on fish is a very understudied field. Although there is a lack of direct studies, it is plausible that turbine blade shadow flicker and secondary light patterns from turbine structures may have a potentially negative impact on Atlantic salmon or other fish species at offshore wind farm sites.

v. *Novel habitat construction (artificial reef effect)*

The construction of new offshore structures can lead to various ecological changes, including the introduction of physical barriers, shifts in community composition, altered predator-prey dynamics, increased disease risk, higher levels of suspended sediment, and changes in fishing activity. Further research is needed to understand the impact of these changes on both adult and juvenile Atlantic salmon, which migrate through offshore wind farms, as well as sea trout, which not only migrate but also spend a significant portion of their marine life developing in these affected areas. There is some recognition that there may be high sensitivity to predation on salmon and sea trout as a result of novel habitat construction but again little evidence to argue otherwise.

Conclusion

We have no wish to prevent or delay any proposed development unnecessarily and we remain keen to work constructively with the developers and Marine Directorate to identify appropriate monitoring programmes which will allow us to be able to assess the acknowledged risks of this development, and other proposed developments in a more appropriate manner.

There is a clear and urgent need to fund, plan and start strategic research on the movement, abundance, swimming depth, feeding behaviour and impact pathways relevant to diadromous fish. Such research would clearly feed into the potential mitigation measures that might be deemed appropriate, and the conditions under which such mitigation should be enacted.

Developers should be required to work together to fund strategic monitoring, in order to allow more certainty for all involved and we welcome the commitment to this approach by the developer. We cannot continue to respond to consultations of this scale and impact without the ability to query or challenge developments that do not support and undertake the collation of scientific research on diadromous fish for this emerging industry.

Yours sincerely

[Redacted]

[Redacted]

Fisheries Protection Manager, Dee District Salmon Fishery Board

Flotation Energy

4th February 2025

Marine Directorate Licensing Operations Team

By e-mail: MD.MarineRenewables@gov.scot

Dear Sir/Madam

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND A MARINE LICENCE UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND PART 4 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE THE MUIR MHÒR OFFSHORE WIND FARM, APPROXIMATELY 63 KM EAST OF PETERHEAD

Thank you for consulting Green Volt Offshore Windfarm Ltd and Cenos Offshore Windfarm Ltd on the application submitted to the Scottish Ministers on 22 November 2024, in accordance with the above legislation, to construct and operate the Muir Mhòr Offshore Wind farm and transmission infrastructure at a site off the coast of Peterhead by Muir Mhòr Offshore Wind Farm Limited ("the Applicant").

As Green Volt Offshore Windfarm Ltd and Cenos Offshore Windfarm Ltd are both being developed under the joint venture formed by Flotation Energy Ltd (Flotation Energy) and Vårgrønn AS (Vårgrønn), **a joint response has been prepared**. Flotation Energy is an offshore wind development company, headquartered in Edinburgh, UK. Founded in 2018, the company is pioneering the deployment of both floating and fixed offshore wind in Scotland, the UK and Internationally. Vårgrønn is a growing agile offshore wind company and established as a joint venture between Italian energy major Eni Plenitude and the Norwegian private equity manager and offshore energy serial entrepreneur HitecVision.

The proposed consenting boundary for Muir Mhor Offshore Wind Farm is located approximately 29.5 km from Green Volt Export/Import Cable Corridor (EICC) and 0.2 km to the south of the Cenos Offshore (EICC). The Green Volt Offshore Windfarm project was granted consent (section 36 and Marine Licences) by the Scottish Ministers on 19 April 2024 as well as planning permissions by the Aberdeenshire Council for onshore activities on 21 March 2024. Cenos Offshore Windfarm Ltd submitted its Scoping Report for offshore activities in April 2024 and received a Scoping Opinion from Scottish Ministers on 10 September 2024. The Cenos EIAR was submitted to Scottish Ministers in January 2025.

Green Volt provided feedback on the Muir Mhòr Scoping Report on 10 August 2023 via the

MD-LOT consultation. The Applicant acknowledges and responds to the feedback from Green Volt and Cenos in the EIA Report, Volume 2, Chapter 19: Infrastructure and Other Users – table 19. We appreciate the confirmation to engage with the Green Volt and Cenos projects and welcome the opportunity for discussions.

The following feedback, set out by topic, should be considered by the Applicant further.

Inclusion of Green Volt and Cenos in the EIA

Throughout the EIAR, there appears to be inconsistency regarding the inclusion (or otherwise) of Green Volt and Cenos in terms of cumulative effects assessment (CEA). In Chapter 19: Infrastructure and Other Users, Cenos is discounted as a receptor due to the lack of a submitted application. However, the overlap of construction and operational timelines is noted in other chapters where Cenos is included as part of the cumulative assessment. Furthermore, Cenos submitted a Scoping Report in March 2024 which provided sufficient spatial and technical information to inform a CEA, so we would expect to be considered by other developers where there is potential for cumulative effects. There may be valid reasons to exclude other offshore wind projects from a CEA (e.g. excessive distance between project activities, or lack of connectivity between impact pathways). However, this justification has not been stated in the documentation and we question the inconsistency applied here in the approach to CEA.

We note the consideration of the Green Volt EICC and the recognition that there would be potential disruption to Green Volt operations. The potential for cumulative effects for activities which overlap temporally or spatially is also acknowledged. Therefore, we suggest that further engagement with the Green Volt project team to understand the potential disruptions to Green Volt's activities, as well as the locations of proposed cable crossings, is required.

Additionally, we have noted that the NorthConnect interconnector is discussed inconsistently in a number of sections of the EIA Report; most notably, Volume 2, Chapter 14: Shipping and Navigation, Volume 3, Appendix 14.1: Navigational Risk Assessment, and in the CEA long-list. In each of these sections, NorthConnect is described as being in a "pre-planning" stage, whilst elsewhere it is noted to have "planning permissions". Where it has been described as "pre-planning", it is omitted from assessment. NorthConnect retains full planning permissions and offshore licensing requirements in Scotland and thus should not be considered in "pre-planning" in Scottish waters or onshore. This reclassification may have important bearing on the assessments and this should be confirmed.

Benthic and Marine and Coastal Processes

Muir Mhòr, Green Volt and Cenos, in addition to a number of other offshore wind projects, will route cables through the Southern Trench ncMPA. A comprehensive and consistent assessment is therefore required to ensure environmental impacts are suitably mitigated. With this in mind, the assessment of impact to seabed features and habitats within the EIA report requires clarification. NatureScot provided feedback to the Applicant's Scoping Report and identified that the "moraines element of Quaternary of Scotland interest within the Southern Trench MPA should be recognized…". In the relevant section, boulder clearance is discounted from the assessment as boulder will be relocated immediately to the side of the corridor via a grab tool. However, the project description states that a plough may be used where there are higher densities of boulders. The worst-case plough

scenario has not been assessed, and this should be rectified in the EIA Report.

Outside of the Southern Trench MPA, the same omission of boulder clearance by plough may mean the impact on other protected features or seabed habitats (e.g. Annex I reef habitats surrounding the nearshore cable route) has not been fully assessed.

Ornithology

The conclusions of the Applicant's assessment of potential impact to ornithological receptors in the EIA report and the Report to Inform Appropriate Assessment indicated no Adverse Effect on Site Integrity (AEOSI) from the project alone but does identify an in-combination risk of AEOSI.

Whilst recognising that ornithological assessments are conservative and precautionary, the conclusion of no AEOSI from the project alone should be reviewed as some estimated impacts are higher than expected. Scottish Ministers, in their determination of Green Volt deemed 0.8 puffin/annum to qualify as a risk of AEOSI for the project alone, despite being a fraction of an animal on the basis that, over the lifetime of the project the effect would be significant. The Applicant has identified a 0.39 puffin/annum impact from the project alone and this may be met with the same response from Scottish Ministers as was given to Green Volt.

Similarly, the PVA assessment of Guillemot associated with the Buchan Ness to Collieston Coast SPA indicated a 6.1% reduction in end population size. This has been deemed to be of no risk of producing AEOSI; however, given such a level of impact (in excess of 5% of the population being affected), this conclusion seems surprising. It may be useful to review the model to ensure the figures are correct and/or reconsider the AEOSI status.

Derogation / Compensation

We are pleased to see early consideration of the need for a derogation and outline compensation measures proposed by the Applicant. As Green Volt also proposed disturbance management as a compensation measure, which was accepted by Scottish Minister, we clearly agree that management of disturbance can significantly aid seabird productivity. However, it is not clear that the locations identified for disturbance reduction are heavily used by the public, either on clifftop paths or via boat-based activities. Evidence of disturbance must be gathered and accepted by the SNCBs before such a measure can be accepted in these locations. Similarly, the proposed compensation of providing for predator eradication at Inchcolm and Inchkeith islands in the Firth of Forth are ambitious, if not difficult to execute. The Applicant's compensation plan explains that the location of these islands close to shore and their regular recreation and tourist use has introduced several species of predatory rodents to the islands. However, it is unclear how the efficacy of predator removal from the islands would be achieved or maintained for the duration of the project, particularly given ongoing access by recreational and tourist vessels is anticipated.

Summary

Green Volt Offshore Windfarm Ltd and Cenos Offshore Windfarm Ltd are pleased to see Muir Mhòr progress and contribute to achieving Scotland and the UK's offshore wind ambitions. As another floating offshore wind farm project, we also concur that all three projects will demonstrate considerable environmental and economic benefit for Scotland.

A comprehensive assessment of impacts is necessary to ensure that Scotland achieves maximum benefit and minimizes negative impact. We would therefore like to reiterate that the Applicant's Assessment, although detailed appears to have overlooked some aspects, and therefore the assessment of our projects is inconsistent. We request that all impacts (alone and in-combination) are assessed appropriately, and consideration given to the suggestions above.

Yours sincerely,

[Redacted]

Glasgow Airport

From: #GLA Safeguarding
To: MD Marine Renewables
Cc: **[Redacted]**
Subject: RE: Muir Mhor Offshore Wind Farm Limited FAO **[Redacted]**
Date: 07 March 2025 10:17:05
Attachments: image001.png
image002.png
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image906546.png

Hi there

Apologies, the email was sent from the wrong mailbox – Muir Mhor is outwith the consultation area for Glasgow Airport. Aberdeen Airport, which I also represent, has no safeguarding objection as per the letter dated 13th February 2025.

Kind regards
[Redacted]

GLASGOW AIRPORT

#GLA Safeguarding
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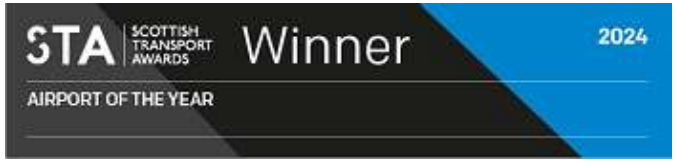
Glasgow Airport, Erskine Court, St Andrews Drive, Paisley, PA3 2TJ



Historic Environment Scotland

By email:
MD.MarineRenewables@gov.scot

Marine Directorate (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: 300064023
Your ref: 00011025/00011026

04 February 2025

Dear Marine Directorate

The Electricity Act 1989 Section 36
The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017
Muir Mhor Offshore Wind Farm - Construction and Operation of Generating Station

Thank you for consulting us on this Environmental Impact Assessment (EIA) Report and planning application. We received the consultation on 06 December 2024.

We have reviewed the report and considered the proposed development in terms of our historic environment interests. This covers World Heritage Sites, scheduled monuments and their settings, category A-listed buildings and their settings, inventory gardens and designed landscapes, inventory battlefields and Historic Marine Protected Areas.

From 1 January 2025 we no longer provide advice on undesignated underwater cultural heritage. This includes the preparation of documents for post-consent activities including Written Schemes of Investigation or Protocols for Archaeological Discoveries. For EIA projects, the relevant competent authority must ensure that they have access to sufficient expertise to examine the EIA Report in accordance with the relevant regulations.

Our advice

We are broadly content with the content of the EIA Report provided and we **do not object** to the planning application.

We are content that there will not be significant impacts on the site or setting of our historic environment interests. We welcome the embedded commitment measures to reduce the potential for impacts on heritage assets, including the implementation of scour protection, micro siting of infrastructure, implementation of a Protocol for Archaeological Discoveries (PAD) and the creation of Archaeological Exclusion Zones (AEZs) around known archaeological features (section 15.6).

These works have the potential to directly impact several known and unknown undesignated heritage assets. These include potential maritime and aviation wreck sites, and possible war graves. We are content, however, that the embedded mitigation measures described would reduce the likelihood and significance of these impacts.

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

Decisions that affect the historic environment should take the Historic Environment Policy for Scotland (HEPS) into account as a material consideration. HEPS is supported by our Managing Change guidance series.

We hope this is helpful. If you would like to submit more information about this or any other proposed development to us for comment, please send it to our consultations mailbox, hmconsultations@hes.scot. If you have questions about this response, please contact Sam Fox at samuel.fox@hes.scot.

Yours sincerely

Historic Environment Scotland

Joint Nature Conservation Committee

Inverdee House, Baxter Street,
Aberdeen, AB11 9QA, United Kingdom

Email: OIA@jncc.gov.uk
Tel: +44 (0) 1224 266550
jncc.gov.uk

Marine Directorate
Licencing Operations Team
375 Victoria Road
Aberdeen
AB11 9DB

By email: [Redacted]

JNCC Reference: OIA-10787

Date: 1 April 2025

Dear [Redac ,

Muir Mhòr Offshore Wind Farm Section 36 and Marine Licence Applications – Environmental Impact Assessment Report, Report to Inform Appropriate Assessment and Habitat Regulations Appraisal

Thank you for consulting JNCC on the above mentioned application, which we received on 18 March 2025.

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 Scottish waters (0-200 nm). JNCC maintains responsibility for offshore Marine Protected Areas (MPAs), for all other advice, we defer to NatureScot.

The following advice relates to the Irish Sea Front Special Protected Area (SPA) which was highlighted in NatureScot's Advice on Ornithological Impacts (dated 4 March 2025), following a query of the outputs of the SeabORD modelling used for the ornithology assessment of the Muir Mhòr Offshore Wind Farm.

Irish Sea Front SPA

The Irish Sea Front SPA has not been included in either the Habitat Regulations Appraisal (HRA) Screening Report or the Report to Inform Appropriate Assessment, even though it seems to meet the criteria specified in Table 4.2 of the HRA Screening Report. Regardless, due to the location of the proposed development and the distance from the Irish Sea Front SPA, it is unlikely that foraging access by the qualifying feature, Manx shearwater, would be disturbed or limited by the development.

Please contact me with any questions regarding the below advice.

Yours sincerely,

[Redacted]

Offshore Industries Adviser

Email: **[Redacted]**

Marine Analytical Unit

Scottish Government
Riaghaltas na h-Alba

Muir Mhòr Offshore Wind Farm

Marine Analytical Unit Response
Marine Directorate

The Muir Mhòr Offshore Wind Farm Environmental Impact Assessment ("EIA") report includes descriptions of a range of potential impacts. This response focuses only on the assessment of social and economic impacts.

Methodology

All socio-economic impacts identified during the scoping stage were assessed. The assessment was carried out for all stages of the project (construction, operation and maintenance, decommissioning).

We broadly agree with the economic methodology used in this assessment.

The assessment considered the following potential effects:

- Increase in employment and GVA;
- Demographic changes;
- Change to housing demand;
- Changes to other local public and private services;
- Socio-cultural changes.

These effects were considered for the following areas:

- A variety of ports for construction and O&M, noting that precise port locations won't be known until a later stage.
- Scotland;
- UK.

The Socio-economics, Tourism and Recreation Report states that since construction and operation and maintenance port(s) are not yet known, the social impact assessment has been based on the population and workforce of the local areas surrounding a long list of potential construction and operation and maintenance port(s).

The assessment uses magnitude and significance methodology that is dependent on a predicted change of around 0.25-1.00% of the population of the study area for impact to be determined as significant.

The Methodology section of the Socio-economics, Tourism and Recreation Report (Volume 2, Chapter 17, page 19) states that no specific surveys with communities have been conducted for the development and that the Socio-Economics chapter relied on a desktop study only. MAU's Scoping Opinion (paragraph 5.13.2., page 29) had specifically recommended doing social research and primary data collection with

communities potentially affected by the development. It is good practice to do so as part of an SEIA in order that those people who are most likely to be affected by a development have a say in what they anticipate the likely impacts to be. This is particularly important in the absence of robust social data from existing sources.

All social impacts have been determined to be negligible, but this might be due to the use of the magnitude and significance methodology that is not always adequate for assessing social impacts on communities. In reality, changes within communities might be quite significant, especially given the potential cumulative effects of the upcoming ScotWind developments. It would have been helpful if there had been more attention given to potential social impacts at a more localised level. We note the developer's participation in the Crown Estate Project but there is no analysis from this project yet that can be used in this assessment.

Overall, throughout this assessment there is only limited coverage of social impacts, and this could increase the uncertainty around some social impacts that could be associated with this project.

Paragraph 17.7.45, page 52 of the Socio-economics, Tourism and Recreation Report states that *"There is anecdotal evidence in rural communities in Scotland, the opportunity to capture high quality local employment may draw people back to the area who have previously left to find work elsewhere."* The use of anecdotal evidence is not sufficiently robust for an assessment such as this and would need to be backed up by some other robust data source or analysis that demonstrates this to have occurred.

With regards to Diffley Partnership research mentioned in section 17.7.69 to assess socio-cultural impacts, there are limitation in relying on this because it is a national level study that was not specifically produced for this assessment.

There are some discrepancies in data. For example, paragraph 17.7.41. states that a peak workforce of 30 people will be required to fulfil contracts at the construction port, whereas paragraph 17.7.76 states that a peak workforce of 16 people will be required to fulfil contracts at the construction phase. It is not clear which number is correct.

Summary of anticipated impacts

The proposed development is expected to have £239 million in Scottish expenditure and £259 million in rest of the UK expenditure during the construction phase, as well as £686 million in the EU (including the manufacture of wind turbine generators). This is expected to lead to beneficial socio-economic effects in Scotland through supply chain activities. However, the distributional impacts and how different groups in society are going to be affected by these changes in the economy have not been assessed, and this means we lack further insights on which people in society will benefit.

With regards to employment, construction phase is expected to generate 1,410 years of direct employment in Scotland (peaking at 570 jobs) and annual 180 jobs in Scotland over operations and maintenance phase.

The assessment states that in terms of demographic changes during the construction phase, a peak workforce of 30 people will be required to fulfil contracts at the construction port and a peak workforce of 233 people to fulfil contracts at the manufacturing port. How this increase in population will be experienced will depend on the size and demographics of the population surrounding the construction port. The development is not expected to cause demographic changes during the operation and maintenance phase.

During construction phase, the development is expected to require increased demand for sort-term accommodation, such as hotels, bed and breakfast, and caravan parks. This could adversely impact tourism. During operation and maintenance phase, the demand for long-term housing is expected for stable workforce with more families.

The anticipated population increase around the construction port is likely to increase demand for healthcare, educational, and private services. It is expected that operation and maintenance phase of the development will see the increased demand for schools and educational services.

The increased population associated with activity around construction port may affect how local communities perceive their area. During the operation and maintenance, the development may lead to non-significant negative socio-cultural impacts.

The assessment considered potential impacts on commercial fisheries, and has not identified significant effects.

Taking into account the embedded commitments of the project outlined in the licensing application, all identified impacts result in effects of negligible or moderate (beneficial) significance. Cumulative impacts on socioeconomics, tourism and recreation receptors are predicted to result in negligible or moderate (beneficial) significance. This is not deemed significant and, therefore, no additional mitigation is considered necessary.

Summary

Overall, the methodologies and the desk top assessment of socio-economic impacts is conducted to a satisfactory standard for a project of this size. However, there are some inaccuracies in data presented for the assessment. Where economic and social impacts arising from the development can be assessed, these are broadly found to be beneficial. However, the project did not conduct primary social research with communities in line with MAU best practice advice issued during the scoping stage.

Maritime and Coastguard Agency

Maritime and Coastguard Agency
UK Technical Services Navigation
105 Commercial Road
Southampton
SO15 1EG
www.gov.uk/mca

Licensing Operations Team
Marine Directorate
Scottish Government
Marine Laboratory
Aberdeen, AB11 9DB
By email to: MD.MarineRenewables@gov.scot

4 February 2025

Dear Sir/Madam

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND A MARINE LICENCE UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND PART 4 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE THE MUIR MHÒR OFFSHORE WINDFARM, APPROXIMATELY 63 KM OFF THE COAST OF PETERHEAD.

The Maritime and Coastguard Agency (MCA) is an Executive Agency of the Department for Transport and is responsible throughout the UK for implementing and developing the UK Government's maritime safety and environmental protection policy. This includes co-ordinating maritime Search and Rescue (SAR) through His Majesty's Coastguard 24 hours a day, and checking that ships meet UK and international safety rules. The MCA works to prevent the loss of lives on the coast and at sea, to ensure that vessels are safe, and to prevent coastal pollution. The UK Technical Services Navigation Branch is responsible for UK radiocommunication and navigation policy. This primarily covers SOLAS Convention (Safety of Life at Sea Convention 1974, as amended) Chapters IV and V; the COLREG Convention (International Regulations for Preventing Collisions at Sea 1972, as amended); and the ITU Convention (International Telecommunications Convention 1932, as amended).

Volume 2, Chapter 14: Shipping and Navigation
Volume 3, Appendix 14.1: Navigational Risk Assessment

Muir Mhòr Offshore Wind Farm Limited has undertaken a detailed Navigation Risk Assessment (NRA) in accordance with MCA guidance MGN (Marine Guidance Note) 654 and NRA risk assessment methodology. We are satisfied that appropriate traffic data was collected in accordance with MGN 654, which included two 14-day marine vessel traffic surveys of the generating assets area in February 2023 and July/August 2023, and two 14-day AIS-only data collection of the export cable corridor during the same months. These are supported by 12 months of AIS data from 2022. Key and appropriate stakeholders were identified, and the MCA is content that suitable consultation took place via a hazard identification workshop and dedicated meetings. A completed MGN 654 Checklist has been provided as part of the NRA, and we are content the recommended NRA process has been followed.

The MCA is content that the hazard log presented in Annex B of the NRA is a reasonable and proportional assessment of the risks. The list of embedded risk controls in Table 23-1 of the NRA and Table 14-11 of the Shipping and Navigation EIAR Chapter is appropriate and we will expect them to be included in the post-consent documentation plans.

Traffic monitoring by automatic identification system for a duration of three consecutive years following the completion of construction of authorised project will be required. This requirement is mentioned in the MGN Checklist as an embedded mitigation measure however it does not appear to be included in the Commitments Register.

Layout Design (DSLP)
The turbine layout design must be compliant with MGN654, and it will require MCA and 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. Further advice will be provided to the project once the layout discussions have started.

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 Trinity House. 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.

Emergency Response and Search and Rescue
There is an expectation that the presence of wind farms will increase the likelihood of the requirement for emergency response, not just from navigational incidents but from other incidents such as medical evacuation or pollution. A SAR checklist based on the requirements in MGN654 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).

The NRA outlines the most likely incidents which may result in a required emergency response though does not fully consider the additional demand likely caused by the presence of personnel offshore, as has been experienced from some other windfarms of comparable size. Since the operations and maintenance strategy is not yet clear or the type of vessels utilised (e.g. crew transfer vessels or service operations vessels), it is difficult to determine what resource and capability will be on site and what the availability of this will be. Furthermore, there may be situations requiring a SAR response where project vessels are unavailable due to weather or crew rotation etc. It should be noted that the presence of a windfarm diminishes the SAR capability and even with an MGN 654 compliant layout, there are still no guarantees of an effective SAR response and therefore consideration should be given as to how the windfarm will mitigate this reduction.

Some of the older studies carried out on helicopter SAR trials at North Hoyle are referenced in paragraph chapter 25 of the NRA. There would be additional 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.

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. It will be expected that Muir Mhòr Offshore Wind Farm Limited will provide this AIS and VHF capability to the MCA with direct access to HM Coastguard systems.

Mooring Arrangements
Third Party Verification of the mooring arrangements for all floating devices will be required prior to construction to provide assurance against loss of station. Ideally this will be a condition of the marine licence. Guidance on regulatory expectations on mooring arrangements can be found on our website: https://www.gov.uk/guidance/offshore-renewable-energy-installations-impact-on-shipping.
Chapter 14.7.142 of the EIAR recognises the need to provide continuous monitoring of each individual WTG, including an alarm system to alert the Marine Coordination Centre if a structure leaves a pre-

determined safe area. The use of GPS in this system would be expected but inclusion of AIS on all turbines and the overall particulars of this system will need further discussion with the MCA and NLB.

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.

Wet Storage Plans
We note in Table 14-11 of the EIAR that a Wet Storage Plan (WSP) will be developed to provide details for assembled turbines and cables. We would ask the applicant to discuss any information of potential wet storage locations outside of Statutory Harbour Limits with relevant maritime stakeholders including MCA and the NLB.

Liaison with local MCA Marine Office
Muir Mhòr Offshore Wind Farm Limited should be reminded that their contractors and subcontractors must have the required certification for all vessel operations, and early engagement with the local MCA Marine Office should be undertaken to ensure compliance with survey and inspections, towage, and safety requirements. A loadline exemption for the turbine platforms will be required prior to any towage.

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. It is noted the export cable will be High Voltage Alternate Current (HVAC) which is expected to have no impact on electro-magnetic fields and ships' magnetic compasses.

Safety Zones
The requirement and use of safety zones as detailed in the EIAR is noted, and MCA will comment on the safety zone application once submitted, as a statutory consultee. 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.

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: www.gov.uk/guidance/offshore-renewable-energy-installations-impact-on-shipping

The comments detailed above are not considered to be blocks to development, but they are provided to highlight areas of concern. Subject to the applicant meeting requirements addressed in this letter, and meeting licence conditions, it provides a cautious acceptance of the application for consent.

Yours faithfully,

[Redacted]

Ministry of Defence

Defence Infrastructure Organisation

[Redacted]
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: [Redacted] @mod.gov.uk

Application Ref: Muir Mhor Offshore Wind Farm.

Our Reference: DIO10059508

[Redacted]
Marine Licensing Casework Officer
Licensing Operations Team
Marine Directorate
Scottish Government
Marine Laboratory
Aberdeen
AB11 9DB

By email only

04 February 2025

Dear [Redacte

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 AND A MARINE LICENCE UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND PART 4 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE THE MUIR MHÒR OFFSHORE WINDFARM, APPROXIMATELY 63 KM OFF THE COAST OF PETERHEAD.

Thank you for consulting the Ministry of Defence (MOD) in relation to the above applications for an order granting development consent for the Muir Mhor Offshore Wind Farm through your communication dated 6 December 2024.

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 Muir Mhor Offshore Wind Farm.

This scheme will comprise of up to 67 wind turbines, each with a maximum height to blade tip of up to 340 metres above mean Sea level (MSL) that will be located approximately 63km east of Peterhead

and 65km east of Aberdeenshire. In addition to the turbine structures there will be up to two Offshore Electrical Platforms (OEP(s)) and associated floating foundations, the OEP(s) and associated floating foundations, the inter-array cables, interconnector cable, offshore export cables and landfall at North of Peterhead.

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, 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 radar deployed at Remote Radar Head (RRH) Buchan.

Air Defence (AD) radar

The proposed turbines would be located approximately 65.6km 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 Buchan.

The need to mitigate the impacts of the proposed development upon the effective operation of RRH Buchan has been recognised by the applicant and are set out in Chapter 16, Military and Civil Aviation of the Muir Mhor Offshore Wind Farm Environmental Impact Assessment Report (22 November 2024). 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 RRH Buchan

Physical Obstruction

In this case the development falls within Low Flying Area 4 (LFA 14). Within these areas fixed wing aircraft may operate as low as 250 feet or 76.2 metres above ground/sea 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 table 16.2 in Chapter 16, Military and Civil Aviation of the Muir Mhor Offshore Wind Farm Environmental Impact Assessment Report (22 November 2024).

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 North of Peterhead, 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 Buchan.

I trust this adequately explains our position on this matter.

Yours faithfully,

[Redacted]

Natural England

Date: 12 February 2025
Our ref: 496071
Your ref: Muir Mhòr Offshore Wind Farm Limited – EIA, Section 36 consent and Marine Licence Applications - Consultation

Lancaster House
Hampshire Court
Newcastle-upon-Tyne
NE4 7YH

Marine Directorate - Licensing Operations Team
Scottish Government
Marine Laboratory
Aberdeen
AB11 9DB

BY EMAIL ONLY

Dear [Redacte

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND A MARINE LICENCE UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND PART 4 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE THE MUIR MHÒR OFFSHORE WINDFARM, APPROXIMATELY 63 KM OFF THE COAST OF PETERHEAD.

- Electricity Act 1989
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017
- The Electricity (Applications for Consent) Regulations 1990
- Marine and Coastal Access Act 2009
- The Marine Works (Environmental Impact Assessment) Regulations 2007

Muir Mhòr Offshore Wind Farm Limited – EIA, Section 36 consent and Marine Licence Applications - Consultation

Thank you for seeking our advice on Muir Mhòr Offshore Windfarm in your consultation which we received on 06th December 2024. We also thank you sincerely for the extensions you granted us for this response. The following constitutes Natural England's formal statutory response.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

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).

Due to our remit, our advice on this consultation is restricted to species within England and to protected species from English designated sites which may be impacted by the proposed wind farm. We defer to NatureScot to advise on Scottish matters.

We have considered the documents provided with the consultation request in our review, and the measures proposed to mitigate for all identified adverse effects that could potentially occur as a result of the proposal. We advise that, providing there are no substantial changes to the project design envelope, this project alone will not have an Adverse Effect on Site Integrity (AEoSI) on any English SPA or SAC. We also agree that any addition to in combination impacts with other projects will be *de-minimis* and as such are unlikely to significantly contribute to AEoSI for any English SPA or SAC in combination with the other Plans or Projects assessed.

Additional Information

Should the proposal be amended in a way which significantly affects its impact on the natural environment then, in accordance with Section 4 of the Natural Environment and Rural Communities Act 2006, Natural England should be consulted again.

For any queries relating to the specific advice in this letter only please contact me using the details below. For any new consultations, or to provide further information on this consultation please send your correspondence to consultations@naturalengland.org.uk.

Yours sincerely

[Redacted]

Operations Delivery Higher Officer Marine
E-mail: **[Redacted]** @naturalengland.org.uk

Natural England (SeabORD model response)

Date: 24 March 2025
Our ref: 506428
Your ref: N/A

Lancaster House
Hampshire Court
Newcastle-upon-Tyne
NE4 7YH

Marine Directorate - Licensing Operations Team
Scottish Government
Marine Laboratory
Aberdeen
AB11 9DB

BY EMAIL ONLY

Dear [Redac

Muir Mhòr Offshore Wind Farm Limited – EIA, Section 36 consent and Marine Licence Applications – SeabORD Issues

Thank you for contacting us on 17th March 2025 with further information regarding NaturScot's query concerning the outputs of the SeabORD modelling used for ornithology assessment. Natural England provided our advice to the Muir Mhòr Offshore Wind Farm Limited EIA, Section 36 consent, and Marine Licence Applications Consultation in letter dated 12th February 2025 (NE ref: 496071).

Due to our remit, our advice on this consultation is restricted to species within England and to protected species from English designated sites which may be impacted by the proposed wind farm. We defer to NatureScot to advise on Scottish matters.

NatureScot have noted that the SeabORD model outputs presented do not appropriately account for connectivity between the development and designated sites. This has resulted in potentially erroneous outputs including predictions of positive effects upon seabird populations. As a consequence NatureScot have been unable to provide advice for a number of designated seabird species. NatureScot highlight that this may have also affected assessment of the following protected species from English designated sites which may be impacted by the proposed wind farm;

- Farne Islands SPA
    - Atlantic Puffin (*Fratercula arctica*) - Seabird assemblage, Breeding
- Coquet Island SPA
    - Atlantic Puffin (*Fratercula arctica*) - Seabird assemblage, Breeding

Within their advice (letter dated 04th March 2025, ref: CNS REN OSWF Muir Mhor) NatureScot suggest options to resolve issues encountered with the SeabORD modelling and provide detailed instruction on how to repeat and review the ornithology assessment.

At present Natural England Ornithology Specialists are working at capacity on other Offshore Wind Farm applications currently under examination. As such we are unable to dedicate specialist time to undertake a detailed review of the implications highlighted by NatureScot in their advice. Consequently we defer to NatureScot on this matter and support their advice to review the ornithology assessment as per their provided instruction.

Natural England welcome re-consultation on any re-assessment that significantly changes conclusions to indicate potential for Adverse Effect on Site Integrity, either alone or in-combination, for any English designated sites. Otherwise we refer to the advice provided in our previous response (letter dated 12th February 2025, NE ref: 496071).

For any queries relating to the specific advice in this letter only please contact me using the details below. For any new consultations, or to provide further information on this consultation please send your correspondence to consultations@naturalengland.org.uk.

Yours sincerely

[Redacted]
Operations Delivery Higher Officer Marine
E-mail: **[Redacted]** @naturalengland.org.uk

National Air Traffic Services

From:	**[Redacted]**
To:	MD Marine Renewables
Cc:	NATS Safeguarding
Subject:	RE: Muir Mhor Offshore Wind Farm Limited – EIA, Section 36 consent and Marine Licence Applications - Consultation – Response Required by 4 February 2025 [SG35754]
Date:	10 December 2024 12:46:02
Attachments:	image001.png

[Redacted]

NATS position, as originally stated in July 2023, remains that, unmitigated, this development would lead to unacceptable impacts on our ability to provide a safe and expeditious air traffic service in the area.

We note the applicant has taken this on board within the EIA, chapter 16 which includes the statement:

> "Consultation with NATS will continue with the aim of delivering a suitable mitigation solution for Allanshill and Perwinnes PSRs prior to the operation and maintenance phase of the Proposed Development."

I can confirm that NATS will continue to support our side of these discussions with an aim of agreeing a suitable mitigation solution.

Regards,

[Redacted]

NatureScot

[Redacted]

Marine Directorate
Scottish Government
Marine Laboratory
Aberdeen
AB11 9DB

31 January 2025

Our ref: CNS REN OSWF Muir Mhòr

Sent by email only

Dear [Redacted],

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND A MARINE LICENCE UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND PART 4 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE THE MUIR MHÒR OFFSHORE WINDFARM, APPROXIMATELY 63 KM OFF THE COAST OF PETERHEAD

Thank you for consulting NatureScot on the Section 36 and Marine Licence applications submitted by Muir Mhòr Offshore Wind Farm Limited (the Applicant) for the proposed Muir Mhòr Offshore Wind Farm. These are accompanied by an Environmental Impact Assessment Report (EIA Report), Report to Inform Appropriate Assessment (RIAA), as well as a Derogation Case - submitted on a without prejudice basis.

This response does not incorporate our advice on ornithological impacts across the EIA Report, RIAA and Derogation Case. Thank you for granting an extension to consider these aspects fully.

Our advice in this letter is in relation to the Array Area, the Offshore Export Cable Corridor (ECC) and landfall (up to MHWS only). Onshore components will be subject to separate terrestrial planning applications.

Policy context

Working within the context of a climate emergency and a biodiversity crisis, we seek to provide advice that is enabling and secures the right development in the right place with most benefit for climate change reduction and that which avoids damage, and where possible, achieves restoration and enhancement of biodiversity.

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 for offshore wind as outlined in the Sectoral Marine Plan for Offshore Wind published in 2020 and now undergoing an Iterative Plan Review (publication anticipated in 2025). The SMP aims to balance the promotion of the sustainable development of offshore wind, whilst protecting and restoring our biodiversity.

We support the current work of the Scottish Government in considering a new policy direction on nature positive requirements for offshore wind. We seek further consideration and engagement on what might be possible in terms of biodiversity enhancement that would also align with the renewable energy production aims and objectives of the proposal - in the context of the climate emergency and biodiversity loss crisis, if consented.

Background

The ScotWind Leasing Round was launched in June 2020 and has resulted in 20 projects being awarded leases with the potential energy generation of 27.6 GW. The Applicant proposes to develop a floating offshore wind farm as part of the ScotWind leasing round.

As detailed in Chapter 1 of the EIA Report, the Applicant was awarded the opportunity to develop the E2 Plan Option Area from the ScotWind Leasing Round.

Proposal

The proposal is located approximately 63km east of Peterhead. The wind farm array will cover an area of approximately 200km^2. The proposal, which is following a project design envelope (PDE) approach, comprises:

- Up to 67 floating wind turbine generators (WTGs), to be installed on tension-leg platforms, buoy/ barge, semi-submersible, or multi-tower semi-submersible foundations.
- A maximum rotor blade tip height of 340m; a maximum rotor blade diameter of 300m and a minimum rotor blade tip to sea clearance of 30m.
- Up to nine mooring lines per floating substructure, if using catenary mooring, semi-taut mooring, or taut mooring. If tension mooring is used, up to twelve mooring lines per floating substructure may be required, with mooring lines doubling up on anchors.
- Up to nine anchors per floating substructure, including options such as: drag embedded anchor, plate anchor, pile anchor, suction anchor, or gravity anchor.
- Up to two Offshore Electrical Platforms (OEPs):
    - On fixed foundations, either jackets with pin piles or suction caissons.
    - With a single interconnector cable of up to 3km in length to connect the OEPs.
- Up to three export cables, each with a maximum length of 90km (270km in total).
- Horizontal Directional Drilling (HDD) for the offshore export cables across the intertidal.
- Subsea cables, comprising:
    - Inter-array cables with a maximum total length of 250km,
    - Subsea junction boxes with a maximum count of 20.

[1] Scottish Government (2022) *A Blue Economy Vision for Scotland*. Available at: https://www.gov.scot/publications/blue-economy-vision-scotland/ (Accessed 27 November 2024)

- Scour protection including: rock placement and rock bags, concrete mattresses, or artificial frond mattresses.
- An installed capacity of approximately 1.0 Gigawatts (GW) with an anticipated operational life of 35 years.

Capacity of the individual WTGs is unknown at this stage, accounting for any anticipated developments in wind turbine technology. As such, the Applicant seeks consent based on the physical parameters of the wind turbines (i.e. maximum blade tip height or rotor diameter), rather than individual installed capacity of the wind turbines.

The construction phase, including site preparation works (i.e. boulder clearance and UXO clearance), is expected to span a period of four years. This does not include any pre-construction surveys, which would take place in the year prior to construction commencing.

The operational phase is expected to be 35 years, which will include a programme of upkeep and maintenance of array assets. When required, this will include the decoupling of WTGs from their moorings and towing to a suitable port for maintenance.

Decommissioning and Repowering are both briefly addressed in Chapter 3, and Section 3.12 proposes leaving certain infrastructure *in situ*. We advise that the Decommissioning Programme (DP) (referred to in EIA Report Volume 2, Chapter 21, Table 21-1) should be predicated on full removal of all infrastructure in line with current policy, noting however, the commitment from the Applicant to follow policy at the time of developing the DP.

Storage and assembly of turbines (wet storage)

It is noted in Sections 3.6.37-3.6.38 of the Project Description (Chapter 3) that the Applicant is not applying for consent and/or licensing of wet storage facilities, and any temporary wet storage area would be entirely within a separate entity / entities with relevant consents. Therefore, the EIA Report does not include a wet storage assessment. Instead, a Wet Storage Plan (WSP) will be developed post-consent to provide details on requirements for assembled WTGs and cabling, as agreed with NatureScot on 24th October 2024 and Marine Directorate on 31st October 2024.

Assessment approach

The Applicant has undertaken EIA which has generally followed the Scoping Opinion, our pre-application advice and published guidance, with some exceptions. The information contained within the EIA Report and RIAA has been well laid out, which has aided our review and understanding of the information provided with the application, for which we thank the Applicant.

Significance matrices

We are increasingly noting the tendency for significance matrix tables presented in EIA Reports to be heavily weighted towards negligible outcomes. This results in the conclusions reached in the impact assessment likely to be underplaying impacts. This is in addition to discrepancies with the individual sensitivity and magnitude scorings, which again are likely to underplay impacts. Further detail is provided within our advice in the relevant appendices, however, we raise this as a broader issue going forward. We would welcome further discussion with MD-LOT as to whether there is a need for further guidance on this aspect to help developers in the preparation of their EIAs.

Ecosystem level effects

Appendix 6.4 focuses on ecosystem level effects and provides a useful assessment of the impacts of the proposed development on the wider marine ecosystem. Noting as above, that we disagree with some of the magnitude, sensitivity and significance scorings presented in the EIA Report across the various receptors, with further detail provided within the relevant appendices to our advice.

Furthermore, we welcome the consideration of stratification presented in Annex A to Appendix 6.4 (*Investigating the impacts of floating turbine structures at the Proposed Development Array Area on shelf sea stratification, nutrient fluxes and primary production*). This provides a useful review of the link between floating turbine structures and stratification, mixing and primary productivity. We provide further advice around stratification in Appendix D to our advice.

Ornithological Impact Assessment

We note some unexpected results arising from the use of the SeabORD MATLAB tool, which are variable and include an increase in survival, which has implications for how displacement results are used in the impact assessment. To better understand how the Applicant has arrived at the displacement results and whether there are any issues in the parameters used, we intend to rerun SeabORD in the R version with altered parameters to gain a better understanding of the results presented in the assessment.

As such, we are unable to provide advice in relation to the ornithological impacts across the EIA Report, RIAA and Derogation package until we have conducted these next steps as outlined above.

We recognise the effort that the Applicant has presented regarding the SeabORD tool to date, including various pre-application engagement. Moreover, the R version that we have access to allows for simultaneous runs and is therefore quicker than the MATLAB version that the Applicant has access to. Thus, we consider that this way forward is a good compromise between recognising the Applicant's efforts to date and enabling our advice.

NatureScot advice – summary

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 4th of March 2025.

We provide detailed advice on each of the other key receptors of concern contained within the appendices. Our final advice for the key receptors is as described below.

Marine mammals – EIA and RIAA

The EIA assessment for marine mammals concludes no significant impacts, both alone and cumulatively. However, we raise an issue regarding the sensitivity scoring, and as such we disagree with the outcome of the assessment. **Instead, we conclude significant impacts for disturbance from piling, both for the proposal alone and cumulatively for white-beaked dolphin; and significant impacts cumulatively for harbour porpoise, bottlenose dolphin and Risso's dolphin.**

As such, should Scottish Ministers grant consent, we advise that:

- **The Applicant will need to consider the implications for marine mammals further, through the development of the Piling Strategy and Marine Mammal Mitigation Protocol (MMMP) post-consent, for all species considered in the EIA Report, but for white-beaked dolphin in particular.**
- **A monitoring proposal to validate the EIA Report predictions and better understand the likelihood of impacts of disturbance from piling will be required, particularly as a floating wind technology development.**

Regarding the RIAA, we agree with the assessment and conclusions provided in Sections 8.1 and 9.2 of the RIAA, such that there is **no Adverse Effect on Site Integrity to bottlenose dolphin associated with the Moray Firth SAC from the proposal, either alone or in-combination.**

Further advice is provided in Appendix A of this response.

Fish and shellfish ecology – EIA

The EIA Report for Fish and Shellfish Ecology concludes **moderate significant impacts** for fish and shellfish species which we support, with the caveat that we do not agree with the sensitivity scoring for some of the species. However, as this does not change the overall significance of effect, we are content for the conclusions to remain as they are.

Secondary mitigation is proposed for impact pathways with a moderate significant effect; however, the proposed secondary mitigation is not sufficiently developed enough to have confidence in its potential efficacy.

As such, should Scottish Ministers grant consent, we advise that:

- **The Applicant will need to consider the implications for herring further, through the development of the Fish Mitigation Plan post-consent, within which –**
    - **The Applicant must provide a clear, evidence-based methodology for defining the peak spawning period for herring.**
    - We recommend that the Applicant commit to a buffer period around the defined peak spawning period to account for variation and uncertainty. The Applicant should identify key data sources, propose potential dates for the spawning (with justification) and submit this for approval prior to the proposed commencement of piling activities. **The mitigation for underwater noise and Suspended Sediment Concentration (SSC) should include this additional buffer period around the defined peak spawning period for herring.**
    - **For impacts from SSC on herring, we advise that Option 2 is undertaken as mitigation and foundation installation without drilling should be avoided in the southwest of the array from August to September to avoid possible smothering of eggs.**
- Moreover, we have concerns regarding the impact from underwater noise on sandeel and, although we can accept a conclusion of not significant, there are inherent uncertainties in the assessment such that **the Applicant will need to consider the implications for sandeel further, through the development of the Fish Mitigation Plan post-consent**
- **Mitigation should be secured on any consent / licence granted by Scottish Ministers.**

Further advice is provided in Appendix B of this response.

Benthic subtidal ecology – EIA

The EIA Report for Benthic Subtidal Ecology concludes **no significant impacts,** either alone or cumulatively from the proposal, which we support. Further advice is provided in Appendix C.

Marine and coastal processes – EIA

The EIA Report for marine and coastal processes concludes **no significant impacts**. However, as detailed in Appendix D, there are important clarifications required on how the worst-case design scenario has been determined, and on the spatial basis for the Cumulative Effects Assessment (CEA).

Additionally, there are important knowledge gaps around the topic of mixing and seasonal stratification which require further consideration in light of emerging evidence from the PELAgIO[2] project. We recommend further advice is sought from MD-SEDD on this. The Muir Mhòr proposal could contribute to closing these knowledge gaps through pre- and post-consent monitoring, if consented, and we recommend this aspect is included in the Project Environmental Monitoring Programme. Further advice is provided in Appendix D.

Blue carbon – EIA

The EIA Report concludes **no significant impacts** with respect to disturbance to blue carbon stocks from the proposal, which we support. Further advice in provided Appendix E.

JNCC advice on Turbot Bank NCMPA

The proposal is located adjacent to the Turbot Bank NCMPA, which is designated for sandeel. On reviewing the assessment JNCC advice is that any impacts on sandeel would be small scale and short term in nature. There is an embedded commitment that the NCMPA will not be crossed by the ECC, however, we would expect to see any commitments to avoiding the MPA secured via licence conditions. Appendix F contains further JNCC advice regarding Turbot Bank NCMPA.

Seascape, landscape and visual impacts (SLVIA) – EIA

We have advised that SLVIA is scoped out of the assessment. We expect the final layout, if consented, to be provided within the Design Specification and Layout Plan (DSLP).

Further information and advice

We hope this advice is helpful. Please contact Caitlin Cunningham (caitlin.cunningham@nature.scot) or Harriet Tyley (harriet.tyley@nature.scot) in the first instance for any further advice, copying in our marine energy mailbox – marineenergy@nature.scot.

Yours sincerely,

Erica Knott

Marine Energy Programme Manager

[2] https://ecowind.uk/projects/pelagio/

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NATURESCOT ADVICE ON MUIR MHÒR OFFSHORE WIND FARM

APPENDIX A – MARINE MAMMALS

Marine mammal interests are considered in Chapter 12 and supporting Appendices 3.1 (Subsea Noise Technical Report), 9.2 (Marine Protected Area Assessment Report), 12.1 (Marine Mammals Baseline Technical Report) and Volume 4 Appendix 3 (Outline Marine Mammal Mitigation Protocol) of the EIA Report, as well as Sections 6.2, 7.2, 8.1 and 9.2 of the RIAA.

Our advice on the bottlenose dolphin qualifying species of the Moray Firth Special Area of Conservation (SAC) as well as the minke whale qualifying species of the Southern Trench nature conservation Marine Protected Area (NCMPA) is included in this Appendix.

The EIA assessment for marine mammals concludes no significant impacts, both alone and cumulatively. However, we raise an issue regarding the sensitivity scoring in our advice below, and as such we disagree with the outcome of the assessment. **Instead, we conclude significant impacts for disturbance from piling, both for the proposal alone and cumulatively for white-beaked dolphin; and significant impacts cumulatively for harbour porpoise, bottlenose dolphin and Risso's dolphin.**

As such, should Scottish Ministers grant consent, we advise that:

- **The Applicant will need to consider the implications further, through the development of the Piling Strategy and Marine Mammal Mitigation Protocol (MMMP) post-consent, for all species considered in the EIA Report, but for white-beaked dolphin in particular.**
- **A monitoring proposal to validate the EIA Report predictions and better understand the likelihood of impacts for disturbance from piling will be required, particularly as a floating wind technology development.**

Furthermore, there are various aspects where we request clarification, including:

- **Why the SCANS III estimate has not been used for the bottlenose dolphin Greater North Sea Management Unit (MU), with consideration given around what difference this may have made to the outcome of the assessment.**
- **Which other developments have been included in the cumulative iPCoD modelling.**

Assessment approach

Magnitude criteria

Magnitude criteria are presented in Table 12-11, and are based around spatial extent, duration, likelihood and frequency of occurrence and effect on population trajectory. Within the assessments themselves, both short-term effects (based on the proportion of the relevant Management Unit affected) and long-term effects (via iPCoD for relevant species) are considered. We are broadly content with the approach used for magnitude criteria.

Sensitivity criteria

Sensitivity criteria are presented in Table 12-12. Section 12.6.65 states that sensitivity is defined by vulnerability, recoverability, and value or importance of the receptor. However, Section 12.6.66 then states that value is not included in the definition of sensitivity because "all marine mammals are considered to have a high value". We disagree with this as a reason to not include value as an element of the criteria. Not including value/ importance within the sensitivity criteria disregards

the inherent reason why cetaceans and seals are given a high level of legislative protection through the Habitats Regulations and fails to fully acknowledge the potential risks to individuals and populations.

Moreover, the sensitivity criteria are based on vital rates (survival and reproduction rates), rather than the sensitivity of individual animals in terms of health or welfare consequences, e.g. hearing damage or loss of foraging. Much of the assessment is based on the outcome of a workshop (Booth and Heinis, 2018)[3] which relied on expert opinion rather than empirical evidence, and which has not been peer-reviewed or published. Therefore, there is a lot of uncertainty around the sensitivity categories and the bar is set very high for anything other than negligible or minor outcome. Given this high level of uncertainty, we consider that the scores assigned are underplaying the sensitivity of some of the impacts and therefore the conclusions reached.

Thus, revisions to the sensitivity scoring are required for various impacts. Table A1 and Table A2 in our advice below present the EIA Report conclusions and revised scores based on our assessment for proposal alone and cumulatively, respectively. Furthermore, monitoring will be required to validate the predictions in the EIA Report and to help reduce uncertainty for any future developments.

Disturbance from underwater noise via UXO clearance

Sections 12.6.22 to 12.6.33 assess disturbance from UXO clearance, using a range of methods: 26km Effective Deterrent Range (EDR) for high order clearance, 5km EDR for low order and TTS as a proxy for disturbance. Although using TTS as a proxy is the preferred approach, it is useful to see all three methods presented for comparison.

Please note our preference and recommendation for low-order deflagration as the primary method of disposal. Low-order deflagration has recently been concluded at another wind farm in Scottish waters as a viable method for reducing sound level and impact range[4].

Disturbance from pile driving

Similarly, for disturbance from pile driving, both a dose-response approach and the Level B harassment threshold are presented. Although using dose-response is the preferred approach, it is useful to see both presented for comparison.

Underwater noise technical report (Appendix 3.1)

This report is well presented, and the approach and results are clearly explained.

Figure 3-3 shows the approximate position of the modelled locations, in the southwest and northeast corners of the site, and in the centre. In terms of the Southern Trench NCMPA, we question whether a worst-case location would have been the northwest corner, as this is closest to the proposal. However, we consider it unlikely that this change would affect the overall outcome of the assessment, and thus we are content with what is presented.

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[3] Booth, C.G, Heinis, F & Harwood J. Updating the Interim PCoD Model: Workshop Report - New transfer functions for the effects of disturbance on vital rates in marine mammal species. 2018. Report Code SMRUC-BEI-2018-011, submitted to the Department for Business, Energy and Industrial Strategy (BEIS), February 2019 (unpublished).
[4] Low-order deflagration of unexploded ordnance reduces underwater noise impacts from offshore wind farm construction - https://oceanwinds.com/wp-content/uploads/2024/05/OW-UXO-BusinessCase.pdf

Section 5.2.1 (cable noise) does not mention more recent papers on cable noise from floating wind farms, including Risch et al. (2023)[5] and Burns et al. (2022)[6]. However, we note that these are discussed in the main marine mammal chapter (Chapter 12), so this does not impact the overall assessment.

Marine Protected Area Assessment Report – Southern Trench NCMPA

To assess the impacts to minke whale in the Southern Trench NCMPA from disturbance due to piling, a range of assessment methods have been presented: dose-response, 15 km EDR, 10 km EDR, and Level B harassment threshold. It is useful to see all approaches presented and compared. The Applicant considers that the Level B harassment threshold is most likely to represent minke whale disturbance responses as it is the only approach based on data collected for a baleen whale species. However, we highlight the uncertainty around each of the methods and current evidence is lacking as to which approach is the most realistic.

Marine mammal technical report (Appendix 12.1)

This is a well-presented, thorough review of existing and site-specific data.

Bottlenose dolphin – Greater North Sea

Section 7.5.1 gives incorrect numbers of SCANS III Block R estimates for abundance (147) and density (0.0023 per km^2). These are the numbers for Block P (to the north of Block R). The correct numbers should be abundance of 1,924 and 0.0298 per km^2.

Instead of the using the Block R estimate, the Applicant has chosen to use a density estimate based on the abundance of bottlenose dolphin in the Greater North Sea MU. Whilst not specified, our understanding is that the abundance in the MU has been divided by the area of the MU. This gives a density estimate of 0.003 per km^2, which is considerably lower than the Block R estimate of 0.0298 per km^2.

Therefore, we request clarification as to why the SCANS III estimate has not been used and further detail should be provided around what difference this may have made to the outcome of the assessment. Given that the density of animals is still relatively low, it may be that the outcome would not be materially different if the numbers were recalculated, but as it stands it is possible that the impacts have been underestimated.

Bottlenose dolphin – Coastal East Scotland

Given the lack of a standard density estimate for this MU, the Applicant has estimated the density of bottlenose dolphins in the region by dividing the abundance of animals by the area of the MU within a 2 km buffer from the coast. Whilst this is a crude approach to calculating density, it is similar to what has been used elsewhere and it recognises the fact that highest densities are found close to the coast. Thus, we are content to accept this approach, which gives a density of 0.12 per km^2.

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[5] Risch, D., Favill, G., Marmo, B., van Geel, N., Benjamins, S., Thompson, P., Wittich, A., Wilson, B. (2023). *Characterisation of underwater operational noise of two types of floating offshore wind turbines*. Report by Scottish Association for Marine Science (SAMS). Report for Supergen Offshore Renewable Energy Hub.

[6] Burns, R., Martin, S., Wood, M., Wilson, C., Lumsden, C., Pace, F. (2022). *Hywind Scotland Floating Offshore Wind Farm: Sound Source Characterisation of Operational Floating Turbines* (Report No. 02521). Report by JASCO Applied Sciences. Report for Equinor.

Impact assessment

Section 12.7 presents the assessment of each potential impact. We are broadly content with what is presented, other than for the impacts below, which we provide further comment on. Additionally, Table A1 and Table A2 in our advice below present the EIA Report conclusions and revised scores based on our assessment for proposal alone and cumulatively, respectively.

Auditory injury from geophysical surveys

The sensitivity of marine mammals to auditory injury (PTS) from geophysical surveys (during pre-construction and construction) is scored as negligible for the MBES and SSS, and low for the SBP, UHRS and USBL. We agree with the scoring for the MBES and SSS, as these devices are above the hearing range of marine mammals. However, we disagree with the scoring for the SBP, UHRS and USBL, and we disagree with the rationale that if frequences are outside the most sensitive range of hearing, then they are not important.

Our understanding of hearing sensitivities in most species is limited, and the importance of frequencies outside the apparent sensitive areas is relatively unknown. New evidence (Houser et al. 2024)[7] suggests that the hearing range of minke whales is greater (extending into higher frequency) than previously thought, and this may also be the case in other species. Moreover, we cannot assume that it is inconsequential if only a small region of an animal's hearing is damaged, as that region may have a particular function that is currently unknown.

Due to these uncertainties, we disagree with the sensitivity scoring of low and advise that it should be scored as high instead, for the SBP, USBL and UHRS. Regarding the magnitude, we are content for this to be scored as negligible, when mitigation is fully implemented. As such, the significance of the effect would remain as negligible and therefore not significant.

Disturbance from geophysical surveys

Similar to the reasoning above, we disagree with the sensitivity scoring of marine mammals to disturbance from geophysical surveys. Instead, we advise that the sensitivity should be scored as medium. Regarding the magnitude, we are content for this to be scored as negligible for the MBES and SSS, and low for the SBP, USBL and UHRS. As such, the significance of the effect would change to minor, for the SBP, USBL and UHRS, however this is still considered not significant.

Auditory injury from UXO clearance

The sensitivity of marine mammals to auditory injury (PTS) from UXO clearance is scored as low to medium, depending on the species, based on the frequency of UXO clearance being "below the most sensitive region of hearing". We disagree with this justification. UXO detonations are broad band and thus, are likely to affect important parts of an animal's hearing range. As above, we disagree with the rationale that if the frequencies are outside the most sensitive range of hearing, then they are not important.

Instead, we advise that the sensitivity should be scored as high. Regarding the magnitude, we are content for this to be scored as negligible, when mitigation is fully implemented. As such, the significance of the effect would remain as negligible and therefore not significant. **However,**

[7] Houser, D.S., Kvadsheim, P.H., Kleivane, L., Mulsow, J., Ølberg, R.A., Harms, C.A., Teilmann, J. and Finneran, J.J., 2024. Direct hearing measurements in a baleen whale suggest ultrasonic sensitivity. *Science*, *386*(6724), pp.902-906.

monitoring should be considered to validate the EIA Report predictions and better understand the likelihood of these impacts.

Auditory injury from piling

The magnitude, with mitigation applied, is assessed as negligible for most species, other than harbour porpoise, minke whale and humpback whale, which are all assessed as low. Given the cumulative PTS ranges (SELcum) predicted, we advise that magnitude should be scored as low for all species, rather than negligible. Whilst we acknowledge that these ranges are likely over-precautionary to an extent, we highlight that they cannot be fully mitigated, and the assessment should acknowledge this.

The sensitivity of marine mammals to auditory injury (PTS) from piling is scored as low for all species. We disagree with this conclusion for the following reasons:

- Much of the reasoning presented relies on findings from Booth and Heinis (2018), which is a workshop report that has not been peer reviewed or published.
- As stated in Section 12.7.97, there is a lot of uncertainty around the ecological consequences of PTS and the approach must therefore be precautionary.
- PTS will be a permanent effect on the individual animal and the long-term effects of this impact are unknown.
- Section 12.7.98 states that TTS and PTS may be induced as a result of impulsive piling in a narrow frequency band, leading to an assumption that effects on survival and fertility are unlikely. This is not supported by any evidence and is highly uncertain, so a precautionary approach must be taken.
- We cannot rely on vessel presence acting as a deterrent for harbour porpoise as stated in Section 12.7.99 and this should not be a consideration for scoring of sensitivity.
- Section 12.7.100 states that “the evidence does not suggest that PTS from piling will cause a material impact on either survival or reproductive rates”. There is very little evidence to support this statement, other than the expert elicitation in Booth and Heinis (2018). Nor is there evidence that there won’t be impacts on these rates – rather there is high uncertainty. We know that hearing can be damaged by underwater noise at levels produced by impact piling, and we know that marine mammals rely heavily on their hearing for a range of functions. Therefore, we expect that their sensitivity to this impact will be high.
- As above, we disagree with the rationale that if the frequencies are outside the most sensitive range of hearing, then they are not important.
- The sensitivity scoring does not take into account the conservation value or importance of these species. All marine mammals have a high conservation value, which implies a high level of sensitivity or vulnerability, and this should be taken into account in the assessment.

Instead, we advise that the sensitivity should be scored as high. As such, the significance of the effect would change to minor, however this would still result in a conclusion of not significant.

Disturbance from piling

The results of modelling using the dose-response approach and the Level B threshold show that the latter predicts much smaller impact zones than the former. Worst case numbers of animals predicted by the dose-response approach are >15,000 harbour porpoise (4.49% of the MU, or 9.47% of the UK portion of the MU), and nearly 7,000 white-beaked dolphins (15.89% of MU,

20.49% of the UK portion of MU), from a single piling event. Numbers for other species are slightly lower, but still considerable. However, iPCoD indicates that, in the long-term, this level of disturbance results in no (or little) change from an undisturbed population. Based on this, magnitude levels for most species are scored as low, with harbour seal scored as negligible and white-beaked dolphin scored as medium. We advise that harbour seal is revised to low, to recognise the potentially large number of individuals affected in the long term. For white-beaked dolphin, the magnitude is scored as medium, based on up to 20% of the population being affected (and iPCoD is not available) – we are content with this.

Sensitivity is scored as low for most species, with grey seals scored as negligible and minke whale and humpback whale scored as medium, with justification provided to support each score. However, there is a large degree of uncertainty around the consequences of disturbance. Thus, we advise that all species are scored as medium sensitivity instead.

For most species, the significance of the effect would change to minor, however this is still considered not significant. The magnitude score of medium combined with a sensitivity score of medium gives a **significance of moderate for white-beaked dolphin, which is significant in EIA terms**. However, a predicted impact affecting 20.49% of the UK portion of the MU could be considered of high significance.

Regardless, this is the first time that white-beaked dolphins have been identified as having a significant impact from an offshore wind proposal and given the uncertainties around this species and the predicted impacts, consideration should also be given to potential strategic research and monitoring.

As such, the Applicant will need to consider the implications further, through the development of the Piling Strategy and Marine Mammal Mitigation Protocol (MMMP) post-consent, to reduce the predicted impact to white-beaked dolphin in particular. Given these predicted impacts, we advise that monitoring to validate the EIA Report predictions and better understand the likelihood of these impacts will be required.

Auditory injury from other construction sources

The sensitivity of marine mammals to auditory injury (PTS) from other construction activities is scored as low for all species, except minke whales and humpback whales, which are scored as medium. Given auditory injury is permanent, we advise that the sensitivity should be scored as high for all species, similar to impacts from piling. Regarding the magnitude, we are content for this to be scored as negligible. As such, the significance of the effect would remain as negligible.

Operational noise

A detailed review of the current knowledge of operational noise impacts is presented in Appendix 3.1 (Subsea Noise Technical Report), which is useful. Based on this, and the duration and frequency of the effect, a magnitude of medium has been given, which we are content with.

Sensitivity has been scored as negligible for most species and low for minke whales and humpback whales. In Section 12.7.297, it is stated that the frequencies of operational noise are below 200 Hz and therefore at the lower end of most species' hearing range. This is only true for the turbine noise, but not for the mooring/cable transient noises, which produce a broad band noise range. These transient noises do not seem to have been included in the sensitivity assessment. For this

reason, and due to the uncertainty around this impact, we advise that the sensitivity score should be low rather than negligible for all species.

As such, the significance of the effect would change to minor, although this is still considered not significant. However, given the uncertainties associated with this potential impact, we advise that **monitoring to validate the EIA Report predictions and better understand the likelihood of these impacts will be required.**

Auditory injury from decommissioning

The sensitivity of marine mammals to auditory injury (PTS) from decommissioning is scored as low for all species, except minke whales and humpback whales, which are scored as medium. Similar to construction impacts, we advise that the sensitivity should be scored as high for all species. Regarding the magnitude, we are content for this to be scored as low.

As such, the significance of the effect would change to minor, however this is still considered not significant.

Proposal alone summary

For the impacts where we disagree with the EIA Report conclusions as detailed above, Table A1 provides a summary of our revised scores based on our assessment for the proposal alone.

*Table A1. Muir Mhòr EIA Report conclusions and NatureScot revised scores based on our assessment for the proposal alone. Cells shaded in red indicate where our conclusions differ. Receptor codes are as follows: HP – harbour porpoise; BND – bottlenose dolphin; WBD – white-beaked dolphin; RD – Risso's dolphin; KW – killer whale; MW – minke whale; HW – humpback whale; HS – harbour seal; GS – grey seal. *Dependent on equipment. ^Significant under EIA.*

		Muir Mhòr EIA Report conclusions			**NatureScot Advice**		
Effect	Receptor	Magnitude	Sensitivity	Significance	Magnitude	Sensitivity	Significance
Auditory injury from geophysical surveys	All	Negligible	Negligible to low*	Negligible	Negligible	Negligible to high*	Negligible
Disturbance from geophysical surveys	All	Negligible to low*	Negligible to low*	Negligible	Negligible to low*	Medium	Negligible to Minor*
Auditory injury from UXO clearance	HP, BND, WBD, RD, KW	Negligible	Low	Negligible	Negligible	High	Negligible
	MW, HW, HS, GS	Negligible	Medium	Negligible	Negligible	High	Negligible
Auditory injury from piling	BND, RD, KW, HS, GS, WBD	Negligible	Low	Negligible	Low	High	Minor
	HP, MW, HW	Low	Low	Negligible	Low	High	Minor
Disturbance from piling	HP, BND, RD, KW	Low	Low	Negligible	Low	Medium	Minor
	HS	Negligible	Low	Negligible	Low	Medium	Minor
	GS	Low	Negligible	Negligible	Low	Medium	Minor
	WBD	Medium	Low	Minor	Medium	Medium	Moderate^
	MW, HW	Low	Medium	Minor	Low	Medium	Minor
Auditory injury from other construction sources	HP, BND, RD, KW, WBD, HS, GS	Negligible	Low	Negligible	Negligible	High	Negligible

	MW, HW	Negligible	Medium	Negligible	Negligible	High	Negligible
Operational noise	HP, BND, RD, KW, HS, GS, WBD	Medium	Negligible	Negligible	Medium	Low	Minor
	MW, HW	Medium	Low	Minor	Medium	Low	Minor
Auditory injury from decommissioning	HP, BND, RD, KW, HS, GS, WBD	Low	Low	Negligible	Low	High	Minor
	MW, HW	Low	Medium	Minor	Low	High	Minor

Cumulative impacts

We are content with the impacts screened in and out of the cumulative assessment.

iPCoD modelling

However, there are inconsistencies between Table 12-66 and Figure 12-27 as to which projects are screened into the cumulative iPCoD. For instance, West of Orkney and Morven are missing from Figure 12-27, despite being listed in Table 12-66. Moreover, Machair and Bowdun are included in Figure 12-27, but are absent from Table 12-66.

We require clarification as to which developments have been included in the cumulative iPCoD modelling. In the meantime, we provide provisional advice below, based on the results presented.

Disturbance from geophysical surveys

Our advice above for the proposal alone assessment applies to the cumulative assessment also.

Disturbance from piling

From Table 12-69, the number of animals predicted to be impacted cumulatively from disturbance from piling are large, e.g. 24,666 individual harbour porpoises are predicted to be disturbed per day, representing 7.1% of the MU. Despite this, the iPCoD modelling indicates that the various impacted MU populations are predicted to continue at a stable trajectory. As such, a magnitude scoring of low to high is assigned, depending on species.

As above, we disagree with the sensitivity scoring of low, and instead advise that this should be medium, noting that minke whale is already assigned as medium. As such, the significance for grey seal and harbour seal would change to minor, however this is still considered not significant. However, a magnitude score of medium combined with a sensitivity score of medium gives a **significance of moderate for harbour porpoise, bottlenose dolphin, Risso's dolphin and white-beaked dolphin, which is significant in EIA terms**.

As such, the Applicant will need to consider the implications further, through the development of the piling strategy and Marine Mammal Mitigation Protocol (MMMP) post-consent, for all species considered in the EIA Report, but for white-beaked dolphin in particular. Given these predicted impacts, we advise that monitoring to validate the EIA Report predictions and better understand the likelihood of these impacts will be required.

Operational noise

Our advice above for the proposal alone assessment applies to the cumulative assessment also.

Cumulative impacts summary

For the impacts where we disagree with the EIA Report conclusions as detailed above, Table A2 provides a summary of our revised scores based on our assessment for the proposal cumulatively.

*Table A2. Muir Mhòr EIA Report conclusions and NatureScot revised scores based on our assessment for the proposal cumulatively. Cells shaded in red indicate where our conclusions differ. Receptor codes are as follows: HP – harbour porpoise; BND – bottlenose dolphin; WBD – white-beaked dolphin; RD – Risso's dolphin; KW – killer whale; MW – minke whale; HW – humpback whale; HS – harbour seal; GS – grey seal. *Dependent on equipment. ^Significant under EIA.*

		Muir Mhòr EIA Report conclusions			**NatureScot Advice**		
Effect	Receptor	Magnitude	Sensitivity	Significance	Magnitude	Sensitivity	Significance
Disturbance from geophysical surveys	All	Negligible to low*	Negligible to low*	Negligible	Negligible to low*	Medium	Negligible to Minor*
Disturbance from piling	HP, BND, RD	Medium	Low	Minor	Medium	Medium	Moderate^
	HS	Low	Low	Negligible	Low	Medium	Minor
	GS	Low	Negligible	Negligible	Low	Medium	Minor
	WBD	High	Low	Minor	High	Medium	Moderate^
	MW	Low	Medium	Minor	Low	Medium	Minor
Operational noise	HP, BND, RD, KW, HS, GS, WBD	Medium	Negligible	Negligible	Medium	Low	Minor
	MW, HW	Medium	Low	Minor	Medium	Low	Minor

Southern Trench NCMPA – minke whale

The results for disturbance due to piling differ considerably across the four approaches presented in Appendix 9.2 (MPA Assessment Report). The dose-response approach is the most precautionary and predicts up to 22.2% of the Southern Trench NCMPA area being affected, with most of this area likely to be in the southeast of the site, where minke whale densities are lowest. As there is no population estimate for the NCMPA, it is not possible to predict numbers of minke whales affected. The other three approaches all predict no disturbance within the boundaries of the site.

Given the uncertainties around disturbance from piling, the use of worst-case scenarios, and the many sources of precaution within the modelling approach, we are content to accept the conclusion that **the achievement of the NCMPA conservation objectives are not at risk of being hindered, both for the proposal alone and cumulatively.** However, **we advise that this activity, and minke whales' responses, are monitored during and post- construction,** in order to validate the predictions made in the EIA Report.

Mitigation

Outline Marine Mammal Mitigation Protocol

In Section 3.1.1 of the outline Marine Mammal Mitigation Protocol (Volume 4, Appendix 3), it states that measures will be applied to any marine mammal species observed. Additionally, **we advise that the MMMP should also apply to basking sharks**, if they are observed, as the mitigation measures will be the same.

For geophysical surveys, the JNCC (2017) guidelines will be implemented, as per Section 5. Additional mitigation measures are also proposed, including:

- Prior to soft-start, Marine Mammal Observers (MMOs) will observe a safety zone of 3 km. However, it is not clear how this additional area will be monitored, for instance, whether additional boats will be required.
- Device power will be reduced to the lowest setting if a cetacean is seen within 1-2 km, and shut off completely if a cetacean is within 500m (and then not resumed for 30 minutes).

For the latter point, we do not normally recommend that operations stop once they have started, because if animals approach within this distance, they are deemed to have moved into the disturbance zone voluntarily. This could extend the overall duration of the survey if there are multiple delays, which could potentially increase the total disturbance. However, we note that in Section 5.5.4, it suggests that this may be beneficial for coastal bottlenose dolphins. As such, we would be content to accept this additional measure within 2 km of the coast only.

In addition to the points above, we recommend the inclusion of directional survey transects during geophysical surveys in nearshore waters. Survey transects (perpendicular to the coast and parallel to the coast) should start at the coast and move seaward to reduce the likelihood that marine mammals are trapped near the shore, which may be of particular importance to coastal bottlenose dolphins.

Section 6 details the proposed mitigation for UXO clearance, which seems appropriate and we note that it will be finalised once the requirements for UXO clearance are known, post-consent.

For piling in Section 7, the outline MMMP proposes following the JNCC (2010) guidance. However, it is proposed that ADDs may be used instead of, and/or as well as, MMO and Passive Acoustic

Monitoring (PAM). This approach has been used elsewhere, so we are content to accept it at this stage, subject to further discussion post-consent.

Noise Abatement Systems (NAS) have not been discussed in relation to piling mitigation. **We recommendation that NAS should be considered as a possible measure to reduce the risk of both PTS and disturbance from piling (as well as UXO clearance)**, especially considering the high level of uncertainty identified in the assessments. Technical development of NAS is ongoing, and the available methods at the time should be considered when finalising the MMMP.

Monitoring

As above, **we advise that monitoring to validate the EIA Report predictions and better understand the likelihood of these impacts of disturbance from piling and UXO clearance will be required**. Site-specific noise monitoring during should be undertaken to validate the assessments in the EIA Report and we recommend that the NPL Good Practice Guide (2014)[8] is followed. Furthermore, **we advise that monitoring of transient noises from mooring lines and cables will be required** due to the lack of understanding of this potential impact.

Southern Trench NCMPA

Regarding minke whale and the Southern Trench NCMPA, **monitoring of minke whale behaviour pre-, during, and post- construction, will be required to validate the assessments in Appendix 9.2**. The Applicant has suggested future studies in Section 5.2.124 of Appendix 9.2 that would help to decrease the uncertainty in these assessments, and we welcome the commitment to engage with such studies.

In particular, we are aware that there are ongoing discussions with other developers in the region around strategic studies for minke whale and the Southern Trench NCMPA and **we recommend that the Applicant contributes to the strategic minke whale monitoring partnership study focusing on broadband acoustics that is already proposed in the Southern Trench NCMPA.** This will increase the understanding of minke whale temporal distribution within the NCMPA, including effort outwith the summer months.

Furthermore, we support the proposal to conduct line transect surveys to better understand finer scale abundance, density, and distribution within the NCMPA and nearby outer Moray Firth area, across the pre-, during, and post-construction stages. Noting that, it would be useful for any survey proposal to compliment the broadband acoustics monitoring discussed above and similarly, larger-scale and more strategic surveys are encouraged particularly for low density species like minke whale. **We recommend the development of a survey plan design for the collection of new visual data** – e.g. multi-year monthly (March – October) systematic boat/aerial transects – which we would be content to engage further with post-consent. Survey work of this nature would more effectively address the uncertainty in the EIA Report conclusions, as well as improving baseline knowledge of the area.

We also recommend collaboration with organisations such as CRRU, WDC and/or academic institutions, to assess **analysis of existing (DAS, boat-based and/or land) sightings data from the**

[8] Good Practice Guide for Underwater Noise Measurement, National Measurement Office, Marine Scotland, The Crown Estate, Robinson, S.P., Lepper, P. A. and Hazelwood, R.A., NPL Good Practice Guide No. 133.

area for minke whale occurrence in the outer Moray Firth, which would be valuable prior to collection of new monitoring data.

European Protected Species (EPS) considerations

At the end of each assessment, there is a paragraph covering EPS considerations, as requested at Scoping. Although brief, it is helpful that this has been considered at this stage.

For most impacts, we are content with the conclusions regarding the likely need for EPS licensing for certain activities and the initial without prejudice predictions of effects on Favourable Conservation Status. However, for auditory injury from piling, we disagree that mitigation will reduce the risk to negligible. Whilst this may be true for instantaneous PTS (SPLpk), which can be fully mitigated, there is still a potential risk from cumulative PTS (SELcum), which cannot be fully mitigated. Thus, further consideration will be required at the time of submitting the EPS licence application.

Consideration as to what the implications might be for cetaceans under the Inshore[9] and Offshore[10] Regulations in terms of how the risk of injury and / or disturbance at an individual animal and /or population level can be mitigated will be required. At the EPS licensing stage, it may be that piling parameters can be refined to be more realistic, methods for modelling and predicting impacts may have improved, and additional / improved mitigation measures (including NAS) may be available to ensure the risk of auditory injury is negligible.

Report to Inform the Appropriate Assessment (RIAA)

Moray Firth SAC – bottlenose dolphin

In line with our Scoping advice and the Scoping Opinion, the bottlenose dolphin qualifying species of the Moray Firth SAC was to be considered via the HRA process, due to the location of the ECC and the potential for underwater noise from piling activities and UXO clearance reaching the coastal area. We agree with the assessment and conclusions provided in the RIAA Sections 8.1 and 9.2, such that there is **no Adverse Effect on Site Integrity to bottlenose dolphin associated with the Moray Firth SAC from the proposal, either alone or in-combination.**

[9] Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)
[10] Conservation of Offshore Marine Habitats and Species Regulation 2017

NATURESCOT ADVICE ON MUIR MHÒR OFFSHORE WIND FARM

APPENDIX B – FISH AND SHELLFISH ECOLOGY

Fish and Shellfish interests are covered in Chapter 10 and supporting Appendix 10.1 of the EIA Report, with additional relevant material presented in Chapter 3, Appendix 3.1 (Subsea Noise Technical Report) and Appendix 10 (In Principle Fish Mitigation Plan). Overall, the report and supporting documentation is well written and explained. Assessments are generally well thought out, and we have provided comments below on areas that require further consideration.

Underwater noise and Suspended Sediment Concentration (SCC) are anticipated to significantly affect spawning herring as a result of the proposal, both for the proposal alone and cumulatively, which we agree with.

Moreover, we have concerns regarding the impact from underwater noise on sandeel and although we can accept a conclusion of not significant, there are inherent uncertainties in the assessment.

As such, should Scottish Ministers grant consent, we advise that:

- **The Applicant will need to consider the implications for herring further, through the development of the Fish Mitigation Plan post-consent, within which –**
    - **The Applicant must provide a clear, evidence-based methodology for defining the peak spawning period for herring.**
    - We recommend that the Applicant commit to a buffer period around the defined peak spawning period to account for variation and uncertainty. The Applicant should identify key data sources, propose potential dates for the spawning (with justification) and submit this for approval prior to the proposed commencement of piling activities. **The mitigation for underwater noise and SSC should include this additional buffer period around the defined peak spawning period for herring.**
    - **For impacts from SSC to herring, we advise that Option 2 is undertaken as mitigation and foundation installation without drilling should be avoided in the southwest of the array from August to September to avoid possible smothering of eggs.**
- **The Applicant will need to consider the implications from underwater noise on sandeel further, through the development of the Fish Mitigation Plan post-consent.**
- **Mitigation should be secured on any consent / licence granted by Scottish Ministers.**
- **A monitoring proposal to validate the EIA Report predictions and subsequent mitigation measures will be required.**
- **Monitoring of EMF either alone or in collaboration via strategic measures to contribute to the evidence gap in relation to EMF impacts and dynamic cables associated with a floating offshore wind farm will be required.**

Study area

The primary study area includes the array and ECC. A wider Zone of Influence (ZoI) defined as a 15km buffer is used for secondary impacts (e.g. suspended sediment and sediment deposition). For underwater noise, a ZoI of 120 km has been applied. The study areas align with advice provided by NatureScot at the Scoping stage.

Baseline characterisation

The data collection methods used for the baseline characterisation are in line with NatureScot guidance, and the correct data sources and methods have been used to characterise the array, ECC and study areas. At the scoping stage the use of eDNA to inform the baseline was discussed, and we are pleased to see that eDNA has been incorporated.

Subsea Noise Technical Report (Volume 3 Appendix 3.1)

Overall, we are satisfied with the Subsea Noise Technical Report, and found it to be well written, systematic and comprehensive. We are pleased to see that the report included particle motion although predictive assessments were not possible. The report does not expressly mention the limitation of noise models that rely on sound pressure instead of particle motion, but overall, we are satisfied with the acknowledgment that there are calls for additional research into this. We agree with the worst-case scenarios modelled for the UWN impacts 5, 10, 15 and 17. We are pleased that a thorough assessment of UXO clearance methods have been provided, with both high and low order, with our preference being low order. We also agree with the worst-case scenarios modelled for the UWN impacts, 5, 10. 15 and 17.

Fish and Shellfish Technical Report (Chapter 10 Appendix 10.1)

The technical report utilises a range of resources to characterise the baseline, and as such, provides detailed information to inform the relevant EIA chapter.

Species assemblages are typical of the northern North Sea area within the array and ECC. Several diadromous fish (Atlantic salmon, sea trout, European eel, river lamprey, sea lamprey, allis shad, twaite shad, and smelt) and elasmobranch species (basking shark, porbeagle, spur dog, tope, spotted ray, common skate, and thornback ray) have been identified as potentially being present in the areas, with thornback rays observed in Drop Down Video (DDV).

Designated sites within the vicinity of the development are identified as the Turbot Bank NCMPA, Southern Trench NCMPA, the River South Esk SAC, the River Dee SAC, the River Tay SAC and the River Spey SAC.

Shellfish communities are identified as including *Nephrops*, European lobster, brown crab, ocean quahog and scallop. Queen scallops were identified in the array and ECC area from DDV.

We are pleased to see the use of eDNA methods, with eDNA sampling confirming the highest species richness in the northwest of the array area, and eDNA confirmed the highest species richness in the central portion of the offshore ECC. In the array area, whiting was the most prevalent species, whilst herring was the most prevalent species within the offshore ECC.

The report shows a strong likelihood of herring spawning activity in the nearshore ECC and within the southwest of the array area, and a high intensity nursery ground within a few kilometres south of the ECC. Additionally, the report shows a high intensity sandeel spawning ground overlaps with the array area and ECC. A high intensity whiting nursery ground overlaps with the offshore ECC within 20 km west of the array. A high intensity cod nursery ground overlaps with the underwater noise ZoI, identified as an area southwest of the array.

Herring

The array and ECC are within the spawning grounds for the Shetland/Buchan herring stocks, which spawns in August and September. The majority of habitat within the array area was deemed

'unsuitable' for herring spawning (>5% mud or 10% gravel). One quarter of samples within the array area in the southwest portion were deemed 'marginal' or 'preferred'. Similarly, much of the ECC was classified as 'unsuitable', but the nearshore portion of the ECC had a higher likelihood of spawning with a mix of habitats; 'suitable/marginal, 'sub-prime/preferred, 'prime/preferred'.

Sandeel

Low abundances of lesser sandeel were detected in the array area from eDNA samples. The report identifies a 0% chance of buried sandeel within the array area due to unsuitable substrate availability from distribution models. However, within the secondary ZoI (Identified as within 15km of the array area), the probability increases to 25% where the zone overlaps with the Turbot Bank NCMPA. In addition, the majority (71%) of sediment samples within the array area were identified as 'preferred'. As such, the report summarises that there is a high intensity spawning ground overlap with the ECC and array.

The results of the site-specific sampling (DDV, grab sampling and eDNA) are high level. For the eDNA results, only the species of conservation importance are listed (Table 3-1), where it would be useful for the full list of species identified to be included. Similarly, the detailed results from the DDV and grab sampling are not included with location information that would be useful for a broader understanding of the area, and to help inform prey species presence for marine mammals and birds.

Assessment approach

Sensitivity criteria

There seems to be confusion around the sensitivity scoring, particularly where a receptor is deemed locally, regionally, or nationally important. Locally important receptors appear to have been designated as less important overall, as indicated with a 'low' sensitivity that states that the receptor may be 'locally important with medium to high vulnerability and low recoverability'. In this scenario, it is possible that an impact could lead to a loss of that receptor on a local scale. Furthermore, Table 10-9 details the ecological valuation criteria and the category of 'local' applies if the spawning / nursery area species 'is located outside of the study area'. We disagree with these valuations as they discount the majority of the fish species assessed and also *Nephrops*.

Thus, revisions to the sensitivity scoring are required for various impacts. Table B1 and B2 in our advice below present the EIA Report conclusions and revised scores based on our assessment for the proposal alone and cumulatively, respectively.

Spawning and nursery grounds

Coul et al. (1998) and Ellis et al., (2012) are used to inform spawning and nursery grounds. In Section 10.5.43, the Applicant critiques the use of Coul et al. (1998) and expresses doubt in its reliability. Whilst we acknowledge the age of the paper, we highlight that it remains the most appropriate and valid data source currently available to determine habitat spawning suitability.

Impact assessment

Suspended Sediment Concentration (SSC)

SSC modelling (Appendix 7.2, Marine Processes Modelling Report) shows that while SSC may extend roughly 6 km north and south of the works area (using HDD), only a small quantity of SSC (≤ 2 mm) is anticipated to settle within 100 m either side of the exit pit. Whilst the anticipated

range of SSC settlement appears localised, the potential for smothering should still be considered within the nearshore region and southern part of the array where herring are likely to be spawning (as identified by substrate suitability).

Modelling for ECC installation indicates deposition caused by jetting can reach a maximum depth of 10 millimetres (mm) directly along the equipment path within the array area. Outside of the array area, deposition is less than 2 mm. Increases in SSC from export cable installation are typically less than 5 mg/l and constrained to within 8 km to the north of the offshore ECC, and within 20 km south of the offshore ECC, which the Applicant states reflect a southward flow dominance.

Spawning herring

The report identifies that herring eggs are most vulnerable to SSC immediately after spawning. The spawning period is defined as August-September, inclusive, with a higher suitability of substrate in the nearshore ECC and southern portion of the array area. Only the nearshore area has been provided with mitigation actions, however, spawning activity could be likely in the southwest of the array area where sediments are found to be 'marginal or preferred'. Anchor and interconnector ECC installation could increase SSC in the array area with considerably greater SSC predicted for foundation installation without drilling (6,030,000 m^3).

The significance of the effect is deemed as moderate, which we agree with and is significant in EIA terms.

As such, the Applicant will need to consider the implications for herring further, through the development of the Fish Mitigation Plan post-consent.

Two mitigation options have been proposed - seasonal restriction of jet trenching in the nearshore only in the 'peak spawning' period (but use of other methods such as ploughing/mechanical trenching are allowed), or seasonal restriction of installation of the ECC in the 'peak spawning' period. Further advice is provided below under mitigation.

Shellfish

For ocean quahog, we are content that there are no significant impacts. For *Nephrops*, it is unclear how a sensitivity of 'low' has been reached from the sensitivity criteria given. However, *Nephrops* is considered 'tolerant' and 'not sensitive' to smothering or increases in SSC (MarESA), and therefore we are content with the overall conclusion of not significant.

Spawning sandeel

The EIA Report suggests that sandeel eggs are not vulnerable to smothering from deposition, with a sensitivity of low assigned. Sandeel eggs are deposited between December and January, and the proposal is adjacent to the Turbot Bank NCMPA, which is designated for sandeel. Moreover, the EIA Report identifies that up to 10% of sandeel spawning grounds overlap with the proposal, which the Applicant claims is relatively small in the context of the spawning habitat available across the northern North Sea. However, this does not account for other developments and their spatial distribution.

As such, we disagree with the sensitivity scoring and instead we advise that the sensitivity should be scored as medium. This would change the significance to minor, however, this is still not considered significant under EIA.

Temporary Habitat Loss and Disturbance

Spawning herring and sandeel

Similarly to our advice provided for SSC, herring and sandeel are both increasingly vulnerable to disturbance at specific times of the year during spawning/resting phases. Sandeel are particularly vulnerable to disturbance and habitat loss in the winter hibernation months, and there is a lack of post-construction research on sandeel habitat use.

Disturbance from habitats, albeit temporarily, at vulnerable periods in these species' life history could impact survival and breeding success. Temporary short-term disturbance is generally considered as not significant for fish receptors, however, **disturbance during key life history stages (spawning/ winter hibernation) for herring and sandeel should be considered further.**

However, we are content with the conclusion of minor significance overall, which is not significant in EIA terms.

Whilst no mitigation has been proposed for this impact, **temporary habitat loss and disturbance could be mitigated for by actions outlined in the Fish Mitigation Plan, and sensitive scheduling of works around these key stages**. A seasonal restriction would protect vulnerable sandeel during works that may lead to temporary habitat loss (*e.g.* installation of infrastructure) in order to significantly reduce potential impacts. However, we recognise the difficulty of this when considering the winter vulnerability of sandeel and summer vulnerability of herring.

Mortality, injury, behavioural impacts, and auditory masking arising from noise and vibration from construction

Mortality and mortal injury – sandeel

We agree that it is appropriate for sandeel to be considered as static receptors (Section 10.7.119), due to their dependency on substrate suitability and demersal spawning behaviours, which therefore makes them vulnerable to underwater noise impacts. However, the presence of suitable spawning habitats that are 'widely distributed' across the northern North Sea does not minimise the impacts to sandeel high intensity spawning grounds and low intensity nursery grounds within the array area. No evidence has been provided to show that sandeel from outside of the array area / ZoI will potentially replenish lost sandeel densities within the array area, and therefore this shouldn't be considered when allocating a sensitivity score for underwater noise. Additionally, the report does not mention the proposed piling times, and therefore it is difficult to say with certainty whether piling operations will not interact with the spawning season of sandeel. In addition to this, sandeel are of national importance to Scotland, which is reflected in their status as a Priority Marine Feature (PMF).

Therefore, we disagree with the sensitivity scoring of low for sandeel (Group 1) from mortality and mortal injury underwater noise impacts. Instead, we advise that a medium sensitivity would be more appropriate. This would change the significance to minor, however, this is still not considered significant under EIA.

However, given the uncertainties associated with this potential impact, we advise that **mitigation should be considered further through the Fish Mitigation Plan for sandeel post-consent.**

Mortality and mortal injury – herring

We question the assertions made in Section 10.7.140. The overlapping spawning grounds in the potential mortal injury noise contour ranges up to 9,500 herring larvae per m^2. This is compared to the 14,500 to 59,000 larvae per m^2 in the main spawning area, with the report concluding that the impact therefore would be minimal. However, due to the high sensitivity of herring and regional importance of stocks with particular sediment requirements, we disagree with the exclusion of areas with lower, but important densities. Regardless, we agree with the overall sensitivity scoring of medium for herring and the overall conclusion of minor significance, which is not significant.

However, given the uncertainties associated with this potential impact, we advise that **mitigation should be considered further through the Fish Mitigation Plan for herring post-consent.**

Recoverable injury

The sensitivity of spawning herring (Group 3) to recoverable injury from underwater noise impacts has been considered as medium. Herring are nationally important fish species and have been assessed as having high vulnerability and high recoverability. Considering the high vulnerability of herring as static receptors, their national importance and the overlapping of spawning grounds, we disagree with the medium sensitivity that has been allocated to herring. Instead, we advise that a high sensitivity would be more appropriate. However, the significance would remain as moderate, which is considered significant under EIA.

As such, the Applicant will need to consider the implications for herring further, through the development of the Fish Mitigation Plan post-consent.

Temporary Threshold Shift arising from underwater noise

We agree with the high sensitivity scoring for static herring (Group 3) and agree with the overall significance of effect as moderate, which is considered significant under EIA. We consider secondary mitigation essential for static herring in order to minimise the risk of TTS.

As such, the Applicant will need to consider the implications for herring further, through the development of the Fish Mitigation Plan post-consent.

Noise and vibration arising from UXO clearance

Similarly to our comments above, herring are nationally important fish species and have been assessed as having high vulnerability and high recoverability. Considering the high vulnerability of herring as static receptors, their national importance and the overlapping of spawning grounds, we disagree with the medium sensitivity that has been allocated to herring. Instead, we advise that a high sensitivity would be more appropriate. However, the significance would remain as moderate, which is considered significant under EIA.

As such, the Applicant will need to consider the implications for herring further, through the development of the Fish Mitigation Plan post-consent.

Electromagnetic field (EMF) impacts

We agree that the risk of exposure to EMF is lower for the buried portions of the export cable and highlight that a burial depth of 1-2 m is preferable.

However, supporting evidence to conclude no impact from dynamic inter-array cables in the water column is lacking. It would have been useful to see the evidence that supports 'low' EMF

emissions >1m and the decay rate with distance from dynamic cables. Additionally, it would also be beneficial to more clearly outline the EMF emissions expected from the proposal, compared to that which can be detected / cause reactions in fish species. There are various metrics quoted (µV/m; Hz; µT) and it is difficult to understand what these represent in context.

Further advice is provided below under monitoring.

Mortality, injury, behavioural impacts, and auditory masking arising from noise and vibration from decommissioning activity

All species have been assigned a sensitivity of low, except for herring, which has been assigned as medium. Similar to construction impacts, we advise that the sensitivity should be scored as medium for sandeel (Group 1) and medium to high for herring (Group 3). As such, the significance of the effect would remain as minor, which is considered not significant.

Proposal alone summary

For the impacts where we disagree with the EIA Report conclusions as detailed above, Table B1 provides a summary of our revised scores based on our assessment for the proposal alone.

Table B1. Muir Mhòr EIA Report conclusions and NatureScot revised scores based on our assessment for the proposal alone. Cells shaded in red indicate where our conclusions differ. ^Significant under EIA.

		Muir Mhòr EIA Report conclusions			**NatureScot Advice**		
Effect	Receptor	Magnitude	Sensitivity	Significance	Magnitude	Sensitivity	Significance
Suspended Sediment Concentration (SSC)	Sandeel	Low	Low	Negligible	Low	Medium	Minor
Mortality and mortal injury	Sandeel	Low	Low	Negligible	Low	Medium	Minor
Recoverable injury	Herring	Medium	Medium	Moderate	Medium	High	Moderate^
Noise and vibration arising from UXO clearance	Herring	Medium	Medium	Moderate	Medium	High	Moderate^
Mortality, injury, behavioural impacts, and auditory masking arising from noise and vibration from decommissioning activity	Sandeel	Low	Low	Minor	Low	Medium	Minor
	Herring	Low	Medium	Minor	Low	Medium-High	Minor

Cumulative Assessment

The approach to the cumulative assessment is in line with our advice, and all cumulative impact pathways have been correctly identified.

Suspended Sediment Concentration (SSC)

Our advice above for the proposal alone assessment applies to the cumulative assessment also. In particular, we disagree with the sensitivity scoring for sandeel and instead we advise that the sensitivity should be scored as medium. This would change the significance to minor, however, this is still not considered significant.

For spawning herring, the significance of the effect is deemed as moderate, which we agree with and is significant in EIA terms.

As such, the Applicant will need to consider the implications for herring further, through the development of the Fish Mitigation Plan post-consent.

Cumulative mortality, injury and behavioural changes resulting from UWN

We agree that there is potential for cumulative mortality, recoverable injury, TTS and behavioural changes from noise and vibration as a result of construction activities associated with the proposal (10.9.26).

Our advice above for the proposal alone assessment applies to the cumulative assessment also. In particular, we disagree with the sensitivity scoring for sandeel and instead we advise that the sensitivity should be scored as medium. The significance would remain as minor, which is not considered significant.

For spawning herring, the significance of the effect is deemed as moderate, which we agree with and is significant in EIA terms.

As such, the Applicant will need to consider the implications for herring further, through the development of the Fish Mitigation Plan post-consent.

The scoring of the magnitude of impact from underwater noise has been categorised as low for Group 3 species and eggs/larvae (excluding herring). We consider this an underestimate if the impact ranges for 'most likely' scenarios are as large as predicted. For example, in a sequential OEP and anchor foundation piling scenario, the range of potential mortality for static Group 3 receptors is 8.6 km. instead we advise that the sensitivity should be scored as medium. The significance would remain as minor, which is not considered significant.

Cumulative EMF Effects

We have concerns regarding the cumulative impacts of EMF on migrating diadromous fish, as existing extensive knowledge gaps associated with this (see Verhelst *et al.,* 2021) make assessing this impact challenging. The evidence base for the impacts of cumulative EMF on elasmobranchs is also largely poor and therefore difficult to conclude with confidence. Further advice is provided below under monitoring.

Cumulative permanent and/or long-term habitat loss/alteration due to the addition of infrastructure to the area

Our advice above for the proposal alone assessment applies to the cumulative assessment also.

Cumulative assessment summary

For the impacts where we disagree with the EIA Report conclusions as detailed above, Table B2 provides a summary of our revised scores based on our assessment for the proposal cumulatively.

Table B2. Muir Mhòr EIA Report conclusions and NatureScot revised scores based on our assessment for the proposal cumulatively. Cells shaded in red indicate where our conclusions differ.

		Muir Mhòr EIA Report conclusions			**NatureScot Advice**		
Effect	Receptor	Magnitude	Sensitivity	Significance	Magnitude	Sensitivity	Significance
Cumulative Suspended Sediment Concentration (SSC)	Sandeel	Low	Low	Negligible	Low	Medium	Minor
Cumulative mortality, injury and behavioural changes resulting from UWN	Sandeel	Low	Low	Negligible	Low	Medium	Minor

Mitigation

The embedded mitigation within the Cable Plan (CaP) includes a commitment to bury cables (where applicable) as the preferred cable protection method. Cable burial (depending on burial depth) has the potential to reduce EMF, and we support cable burial as the preferred method of cable protection.

In Principle Fish Mitigation Plan

Secondary mitigation is proposed for static herring for underwater noise and SSC Impacts. Overall, this is very high level and it is difficult to comment on the proposed mitigation measures for underwater noise as ambiguity surrounds critical determinants such as the peak herring spawning period and number of herring present. The In Principle Fish Mitigation Plan contains a suite of potential mitigation measures but lacks a commitment to a particular strategy. **As such, we advise that further engagement with ourselves is required prior to the development of the Fish Mitigation Plan post-consent.**

The mitigation measures focus on a currently undefined 'peak herring spawning period'. This would be established post-consent through analysis of recent IHLS data and a back calculation to identify the most likely date for spawning commencement. This approach introduces uncertainty and risks excluding important spawning periods outside of the defined 'peak'. In addition, it cannot reflect the likely inter-annual variation in spawning timings that are mediated by numerous abiotic and biotic factors.

The mitigation measures prioritise noise reduction (e.g., altering piling activity, noise abatement or cessation of piling activity) during the yet-to-be defined 'peak spawning period' for the highest densities of spawning. However, this approach risks overlooking important spawning activity that occurs outside of these peaks, potentially exposing significant portions of nationally important herring to harmful noise levels.

Given the sensitivity of herring and their ecological importance, it is critical to consider not only the peak spawning period, but also spawning periods that fall outside of this peak. **As such, mitigation should consider extension beyond the peak period to encompass the broader spawning window, mitigating or ceasing piling activity during this time to better protect the herring population.**

Mitigation measures for noise generated by foundation installation within the array area focuses on recoverable injury, TTS and behavioural effects, rather than mortal injury. A considerable number (≥ 14,500 m^2) of spawning herring are likely to be mortally injured as a result of underwater noise generated by foundation installation during construction. **We do not agree with the exclusion of mortal injury from proposed mitigation.** Effective mitigation within the array area for spawning herring within mortal injury contours could be achieved through existing mitigation suggestions, **such as a full cessation of piling during the herring spawning seasons. A cessation in piling which overlaps herring and sandeel spawning (1 August – 31 November) would offer underwater noise mitigation to nationally important fish species.**

NatureScot are content to see that further underwater noise modelling will be undertaken post-consent to determine if the alternative piling scenarios successfully mitigate the potential for LSE on spawning herring. However, this heavily depends on the definitions mentioned above.

Mitigation option E for seasonal piling restrictions is very high level. No detail is given on potential times and how long on either side of the peak herring spawning period a restriction would be enforced. This requires refining prior to consideration being given to its efficacy.

Overall, it is difficult to comment on the proposed mitigation measures for underwater noise due to the reasons outlined above. **As such, we advise that further engagement with ourselves is required prior to the development of the Fish Mitigation Plan post-consent to determine the best approach to mitigating impacts from underwater noise on spawning fish species.**

For SSC, two mitigation options centred around seasonal restrictions have been proposed. **We advise that Option 2 (seasonal restriction for cable installation works in the nearshore portion of the offshore ECC during peak herring spawning period, as per Section 4.3.22 of the In Principle Fish Mitigation Plan) is undertaken**, which would also reduce disturbance and underwater noise and reduce the likelihood of spawning ground impacts.

Moreover, we advise that foundation installation without drilling should be avoided in the southwest of the array from August to September to avoid possible smothering of eggs.

As such, should Scottish Ministers grant consent, we advise that:

- **The Applicant must provide a clear, evidence-based methodology for defining the peak spawning period for herring.**
- We recommend that the Applicant commit to a buffer period around the defined peak spawning period to account for variation and uncertainty. The Applicant should identify key data sources, propose potential dates for the spawning (with justification) and submit this for approval prior to the proposed commencement of piling activities. **The mitigation for underwater noise and SSC should include this additional buffer period around the defined peak spawning period.**
- **For SSC, we advise that Option 2 is undertaken as mitigation and foundation installation without drilling should be avoided in the southwest of the array from August to September to avoid possible smothering of eggs.**

Monitoring

The In Principle Fish Mitigation Plan report states that ‘consideration will be given to the requirement for monitoring to be undertaken’ based on the identification of mitigation measures.

Monitoring is extremely useful and warranted in any case due to the importance of herring spawning grounds and the general lack of data. Herring spawning in Scottish waters is relatively data deficient, and we would strongly encourage monitoring to be undertaken regardless of the specific mitigation measures. Considering the extensive knowledge gaps surrounding the potential impact of underwater noise, EMF and hydrodynamic changes on fish and shellfish (especially elasmobranchs, molluscs and diadromous fish), it would be beneficial for the Applicant to contribute to further research and the application of Before and After Control Impact (BACI) studies to inform further developments.

Moreover, as noted above and in-line with other recently consented offshore floating wind farm proposals, we advise that monitoring of EMF should be conducted.

As such, should Scottish Ministers grant consent, we advise that:

- **A monitoring proposal to validate the EIA Report predictions and subsequent mitigation measures will be required.**
- **Monitoring of EMF either alone or in collaboration via strategic measures to contribute to the evidence gap in relation to EMF impacts and dynamic cables associated with a floating offshore wind farm.**

Report to Inform the Appropriate Assessment (RIAA) – Diadromous Fish

At the EIA Scoping stage we provided our position on diadromous fish whereby impacts should be assessed through the EIA process and not through HRA. This position reflects:

- Limited knowledge of spatial and temporal distribution and behaviour of these species in the marine environment,
- Lack of evidence to inform impact pathways, and,
- Lack of reference population figures which prevents impact apportioning to SACs.

However, the River Dee SAC designated for Atlantic salmon (and freshwater pearl mussel) has been screened in as set out in Section 7.2 and 8.3 of the RIAA.

Based on our Scoping advice, we offer no comments on the assessment for diadromous fish through HRA. However, we do note that a conclusion of No AEOSI has been reached for the diadromous fish qualifying species of the River Dee SAC.

NATURESCOT ADVICE ON MUIR MHÒR OFFSHORE WIND FARM

APPENDIX C – BENTHIC, SUBTIDAL AND INTERTIDAL ECOLOGY

Benthic, Subtidal and Intertidal Ecology is considered in Chapter 9 and supporting Appendices 9.1 (Offshore Baseline Survey Reports) and 9.2 (Marine Protected Area Assessment Report) of the Muir Mhòr EIA Report. Parts of Appendix 7.2 (Marine Processes Modelling Report) are also relevant to this topic. Overall, the documents provided an appropriate level of detail and were well presented, with our pre-application advice being considered and addressed appropriately.

The assessment for Benthic, Subtidal and Intertidal Ecology concludes **no significant impacts, both alone and cumulatively**, see Tables 9-42 and 9-43 respectively. We broadly agree with these conclusions based on our understanding of the available science.

In this Appendix, we provide comments and advice which addresses elements of the assessment process but does not affect the outcome of the assessment or the overall conclusion of our advice. It does highlight areas where further action is required should Scottish Ministers grant consent.

Study Area

The Benthic Subtidal and Intertidal Ecology study areas comprise of the following, which we are content with:

- Benthic subtidal ecology study area:
    - Array Area (200km^2 located ~ 63km east of Peterhead on the Aberdeenshire coast, in the Central North Sea (CNS).
    - The offshore ECC (~67km from the Array Area to landfall north of Peterhead)
- A Secondary Zone of Influence (ZoI) defined by the distance that suspended sediment plumes may be advected following disturbance, which encompasses a buffer of ~15km around the Array Area and offshore ECC
- Benthic intertidal ecology study area:
    - Seaward of MHWS to the ECC landfall.

Baseline Characterisation

Site-specific surveys (subtidal and intertidal) as described in Table 9-4 were carried out to provide an up-to-date characterisation of the habitats and species occurring within the boundary of the proposal, as well as desktop study (Table 9-5).

The data collection methods for baseline characterisation follow our guidance, and the correct data sources and methods have been used to characterise the OAA, ECC and buffers.

Impact Assessment

Overall, we agree with the overall project assessment of **negligible significance** of effect for Construction, Operation and Maintenance (O&M) and Decommissioning phases, which are not significant in EIA terms. We are satisfied with the sensitivity and magnitude evaluations within the EIA and agree with the significance conclusions.

We note that the impact assessment conclusions seem relatively skewed towards ‘negligible’, where in some instances a higher conclusion of ‘minor’ may be more appropriate. However, this

would not change the overall significance in terms of EIA and therefore, we are content. Please refer to our overarching comments on Significance matrices in the cover letter.

Scour protection is proposed, including rock placement and rock bags, concrete mattresses, or artificial frond mattresses. Section 3.5.34 (Chapter 3 – Project Description) indicates that the concrete mattresses would be linked by a polypropylene rope lattice and Section 3.3.7 of the Non-Technical Summary uses the term "artificial" frond mattresses. Material specifications are not provided for the frond mattresses or rock bags, but we assume these will be plastic products, and likely to become a source of marine microplastics over time. Our preference is that sources of marine plastic pollution are minimised or avoided, in line with National Marine Plan policy GEN 11 on marine litter, and the Marine Litter Strategy. It is unclear from the information provided whether or how quickly the bags/ rope/ fronds will abrade over time, and also whether this will make their removal at decommissioning easier.

Should Scottish Ministers grant consent, we advise:

- **Further consideration should be given to scour protection that avoids or minimises plastic pollution, as well as the likely degradation of any plastic material if used.**

Cumulative Assessment

The approach to the cumulative assessment is in line with our advice, and all cumulative impact pathways have been correctly identified. We agree with the sensitivity (medium) and magnitude (minor) scoring within the cumulative assessment, and we are content with a cumulative effect significance of minor.

Mitigation

No additional mitigation measures are proposed beyond the embedded mitigation outlined within in Table 9-16

We are content with the embedded mitigation proposed.

Monitoring

No specific monitoring is proposed as there are no significant impacts predicted. We are pleased to see that the Applicant is willing to engage with strategic monitoring to better understand the environmental effects of offshore wind farms, and that this will be secured in the Project Environmental Monitoring Plan (PEMP). This may be more appropriate to be considered as funding to specific ScotMER projects.

Southern Trench NCMPA Assessment

We agree with the conclusion presented in Appendix 9.2, Table 5-7 and Table 7-1, that the proposal will not hinder the achievement of the Conservation Objectives of the burrowed mud feature of the Southern Trench NCMPA. This conclusion is primarily based on the distance from the proposed activities to the burrowed mud feature, which is found in the western part of the MPA.

Report to Inform the Appropriate Assessment (RIAA)

No SACs with Annex I qualifying habitats were advanced to the RIAA stage. We agree with this approach.

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APPENDIX D – MARINE AND COASTAL PROCESSES

Marine and coastal processes are considered in Chapter 7 and supporting Appendices 7.1 and 7.2 of the Muir Mhòr EIA Report. Parts of Appendix 9.2 (MPA Assessment Report) are also relevant to this topic. All references within this Appendix refer to Chapter 7.

The assessment for Marine and Coastal Processes concludes **no significant impacts, both alone and cumulatively**, see Tables 7-36 and 7-37 respectively. We broadly agree with these conclusions based on our understanding of the available science.

However, we are mindful that the potential impact of large-scale floating offshore wind farms on mixing and seasonal stratification is an emerging topic with significant uncertainties. At present, floating offshore wind farm proposals provide an early opportunity to contribute towards addressing this evidence gap through pre- and post-construction monitoring. We provide further comments on this topic below.

In this Appendix, we provide comments and advice which address elements of the assessment process but do not affect the outcome of the assessment or the overall conclusion of our advice. It does highlight areas where further action is required should Scottish Ministers grant consent.

Study Area

The marine and coastal processes study area is primarily defined on a spring tidal excursion ellipse distance or Zone of Influence (ZoI), extending 15km from the array area. This is in line with the Applicant's comments at pre-scoping, and we are pleased to see that the study area has been refined from what was presented at the EIA scoping stage.

Additionally, Section 7.5.3 and Figure 7-1 set out a much larger 'wave zone affected by array area' where impacts on littoral processes and wave directions may extend well beyond the smaller 15km ZoI.

The following designated sites with features relevant to marine and coastal processes, are within the study area:

MPA

- Southern Trench NCMPA

Site of Special Scientific Interest (SSSI)

- Loch of Strathbeg
- Bullers of Buchan Coast
- Collieston to Whinnyfold Coast

Annex 1 Habitats

- Annex 1 Reefs

Baseline characterisation

NatureScot are content with the baseline characterisation sources, which include a desktop study, site-specific surveys, and project-specific studies (numerical modelling and stratification

assessment) as described in Section 7.5. At the scoping stage, we requested that the EIA study area be refined using tidal excursion and sediment plume modelling, which we are pleased to see incorporated.

Similarly, at the pre-scoping stage it was agreed that NatureScot would be provided with the definitions of Magnitude and Sensitivity, prior to receiving the EIA Report assessment, however we have not received these definitions. Table 7-7 sets out Magnitude Values and Descriptions, however these include references to near-field and far-field, which do not appear to be defined in the EIA Report. In the absence of full definitions of magnitude for this topic we have been somewhat limited in the advice we can provide.

Impact assessment

We agree with the impacts scoped in and out of (Table 7-11) the assessment, which align with the Scoping Opinion.

The overall magnitude of impact for marine and coastal process has been considered as low, due to the localised effects and short-term duration of the construction activities. **We are broadly content with the findings of Chapter 7 and the MPA Assessment Report and agree with the conclusions presented.**

However, we advise that the total potential impact on seabed morphology has likely been underestimated. We offer specific advice on two impact pathways below, which demonstrate how this underestimate has arisen. Despite this likely underestimate of total potential impact on seabed morphology, we advise that a more accurate assessment would not change our conclusions. However, the underestimate has implications for the Benthic, Subtidal and Intertidal Ecology assessment, as noted in the relevant Appendix.

Impact 4: Seabed scour resulting in bathymetric changes and localised alterations to sediment transport patterns

The assessment for Impact 4 is relies largely on analogy with observations at one operational OWF (Hornsea 1, Orsted 2021). The anticipated potential change to seabed morphology around installations, is of similar height to observed mega-ripples, and could occur where such bedforms do not exist. Although each individual area of change would be localised, there could be up to 603 areas of change in total (anchor points), and therefore the potential for extensive spatial change to seabed characteristics should be considered for benthic receptors.

Impact 6: Modifications to the wave and tidal regime and associated impacts to morphological features

Section 7.7.123 states "*any impacts upon the wave regime are not considered to result in discernible change to seabed morphology".* However, both Section 7.7.123 and the analysis of sediment mobility in Appendix 7.1 (p145) recognise that rare periods of extreme storm waves in the array area are a main factor in the formation and maintenance of observed bed forms. The predicted reductions of wave height of up to 8% across the array area (Section 7.7.121) appear to have the potential to 'take the edge off' this bed forming. Considering this alongside the predicted reductions of up to 5% in areas adjacent to the array area (Figure 7-17), there is potential discernible reduction in bedform mobility over large areas of seabed, which would amount to a medium magnitude rather than the assessed Low.

Predicted changes in Physical Processes have been carried through to the Benthic Impact Assessment (page 112, Volume 2, Chapter 9: Benthic, Subtidal and Intertidal Ecology). We agree with the significance of effect for Physical Processes as minor, with high sensitivity and low magnitude. Additionally, we note that the 'Benthic assessment – Burrowed Mud' in the MPA Assessment Report (5.2.60 - 62) incorrectly carries over a conclusion of significance (of potential scour), rather than the assessed magnitude of low, and sensitivity of high (Southern Trench MPA).

Worst case design scenario

It is not clear whether the draughts factored into the assessments of hydrodynamic change are the largest that would be installed, within the Tension Leg Platform (TLP) scenario considered.

This is clearly seen in Impact 6 where the Worst-Case Design Scenario (WCDS) (Table 7-12) gives a "minimum draught of 20m," for the TLP scenario. This dimension has been used for modelling changes to waves (7.7.120) while for tidal current changes it was a "25m draught" (7.7.126). However, the supporting Appendix 7.2 states a draught of "25m to 50m" (2.2).

Similarly for Impact 7 (Modifications to stratification…) Table 7-12 gives maximum draughts of 40m for the central column and 20m for the TLP 'legs'. Whilst this may be a result of the WCDS trade-offs between turbine size and numbers, it is unclear.

When considering potential impacts which are proportional to the size of installation, it doesn't seem appropriate for the WCDS to contain a 'minimum' dimension. Most importantly, if the draught of the turbine bases could be 50m then the hydrodynamic effects could be significantly greater than assessed. If this is not confirmed, then modelling and assessments may need to be re-run.

We advise MD-LOT to seek clarity from the Applicant on whether the worst-case design scenario is reflected in the assessment presented.

Cumulative Assessment

Cumulative Effects Assessment (CEA) for marine and coastal processes appears to be solely based on the primary 15km ZoI, and does not take account of the much larger 'wave zone affected by array area' (Section 7.5.2-3, and Figure 7-1).

Using only the primary ZoI for screening into the CEA (7.9.6) captures only Hywind, Salamander and two export cables. Without appropriate mapping it is not possible to determine whether the modelled zones of appreciable wave reduction from Muir Mhòr overlap with those of other offshore wind farms (OWFs) within this much larger wave zone. For example, Figure 7-17 shows other OWFs but only waves from one direction, whilst Figures 57-64 (Appendix 7.2) show varying wave directions, but not OWFs.

This may have led to the assessment of Impact 13 (cumulative changes to the wave & tidal regime) omitting additional OWFs which may have cumulative effects on wave climate.

We advise MD-LOT to seek clarity from the Applicant on why this much larger wave zone has not been used in CEA, with consideration given to what difference this may have made to the outcome of the assessment.

Mitigation

We support the provision of the embedded mitigation commitments identified in Table 7-10 of relevance to marine and coastal processes.

No secondary mitigation has been proposed, and the Applicant has concluded for all impacts that the likely effect, in the absence of further mitigation is not significant in EIA terms.

Monitoring

No marine and coastal processes monitoring has been proposed to test predictions made within the assessment of likely significant effects (LSE) on marine receptors, as no LSE were predicted during construction, operation and maintenance (O&M) and decommissioning phases.

During the O&M phase, monitoring will be undertaken for engineering purposes, which will also identify seabed morphological changes and cable exposures. We recommend the inclusion of additional monitoring at pre- and post-construction, to consider impacts on mixing and seasonal stratification.

The ECOWind ("Ecological Consequences of Offshore Wind") project "Physics-to-Ecosystem Level Assessment of Impacts of Offshore Windfarms" (PELAgIO) aims to close a range of knowledge gaps, including on the impacts of offshore wind infrastructure on mixing in the water column. New model outputs were recently presented at the PELAgIO workshop held in June 2024 that clearly show WTG structures have effects on mixing, leading to decreases in sea surface temperature. Although, we note this model is currently based solely on changes to water mixing and does not yet incorporate the effects of changes in wind resource.

This work provides some evidence that offshore wind farms in seasonally stratified waters may affect sea surface temperature across large areas, which may impact primary production, leading to cascading effects on marine food webs. Further observational evidence and modelling is required on this topic.

Should Scottish Ministers grant consent, we advise:

- **Pre- and post-construction monitoring of impacts on mixing and seasonal stratification is included within the Project Environmental Monitoring Programme, taking account of recent PELAgIO outputs and advice from MD-SEDD on this topic.**

Impacts on mixing and seasonal stratification will be cumulative in nature. At this stage we highlight a need and an opportunity to consider future strategic collaborative monitoring around this topic. This could be achieved through a topic-based Regional Advisory Group (RAG) format, linked to the monitoring requirements via the PEMP and/ or the directed funding of relevant strategic ScotMER research projects.

Lastly, we are mindful of the ScotMER project proposal for "*Development of marine physical process modelling guidelines for offshore wind farm environmental impact assessments*" which is currently underway. While the timeline for this project may not align with the current application, it may be useful to consider project outputs when designing monitoring, if consented.

NATURESCOT ADVICE ON MUIR MHÒR OFFSHORE WIND FARM

APPENDIX E – BLUE CARBON

Blue Carbon is discussed on pages 30-31 of the Marine Water and Sediment Quality Chapter (Volume 2, Chapter 8) and assessed in Annex A of that Chapter. Parts of Appendix 9.1 (Offshore Baseline Survey Reports) are also relevant to this topic. All references in this Appendix refer to Annex A, unless otherwise stated.

The overall assessment for Marine Water and Sediment Quality concludes **no significant impacts, both alone and cumulatively**, see Tables 8-45 and 8-46 respectively. Similarly, the standalone Blue Carbon assessment (Annex A, Section 7.1.9) **concludes no significant impacts**. We do not offer comments on the overall assessment of Marine Water and Sediment Quality, however we do support the conclusion of the standalone Blue Carbon assessment.

We acknowledge that Blue Carbon Assessment is a relatively new element of marine energy EIA Reports and welcome its inclusion in this application. In this Appendix we provide comments and advice on aspects of the assessment process which do not affect the outcome of the assessment or the overall conclusion of our advice, however we hope they will be of benefit to future Blue Carbon Assessments.

Study Area

The Marine Water and Sediment Quality Study area includes the Array Area, Offshore Export Cable Corridor (ECC) from the Offshore Electrical Platforms (OEP(s)) to landfall, intertidal area between Mean High-Water Springs (MHWS) and Mean Low Water Springs (MLWS), and areas/receptors that may be impacted by changes in Marine Water and Sediment Quality.

Baseline Characterisation

A desk-based review of relevant spatial and scientific data sources (Table 8-4), site-specific surveys (Table 8-5) of the Array Area, offshore ECC and intertidal area (specifically Particle Size Analysis (PSA) and sediment contaminants), and water quality surveys were used to characterise the Marine Water and Sediment Quality baseline. Sediment plume modelling is also referenced (Volume 3, Appendix 7.2) to support the Marine Water and Sediment Quality chapter.

Annex A – the Blue Carbon Assessment, includes a specific blue carbon baseline in Section 5. This includes general details about factors influencing blue carbon stores that would be better placed within Section 3 (Impacts Assessed). Section 5 could also have included detail of the specific sediment characteristics and total organic carbon (OC) values that were identified during the baseline surveys (*e.g.,* reported elsewhere in Volume 3 Chapter 9: Appendix 9.1). Section 7 (Impact Assessment) could also be more readable and transparent if it included a table highlighting sample locations and associated data.

In Section 2.1.1 the Applicant uses the Scottish Blue Carbon Forum (SBCF) definition[11] of Blue Carbon (BC). This is appropriate for the purposes of this EIA Report; however, the BC definition is being updated by the SBCF to categorise BC based on the blue carbon ecosystem's potential to

[11] Scottish Blue Carbon Forum

mitigate climate change. This is aligned to the concept of BC recognised within the wider BC community and explained within Howard et al., (2023)[12].

Impact Assessment

An assessment of impacts to blue carbon from the proposal has been carried out within the EIA Report. Overall, the assessment of impacts to blue carbon (Volume 2 Chapter 8 Annex A: Blue Carbon Assessment) lacks detail and indicates a misunderstanding of blue carbon science. The assessment narrative is at times confusing to follow and could draw more on the data collected during the baseline surveys to better support the assessment process and overall conclusions.

For example, the sediment descriptions within Volume 2, Chapter 8, Sections 8.5.27-8.5.30 and the Surficial Seabed Sediments map in Figure 8-4 should have been referred to and used within the standalone Blue Carbon Assessment. Improved signposting to different sections of relevance within the EIA Report would also have been welcome, given the lack of data reported within the assessment itself.

We agree with the overall assessment conclusion of significance in Section 7.1.9, such that:

- The receptor is deemed to be of **high vulnerability, low recoverability and high value**
- The sensitivity of the receptor is therefore, considered to be high.
- The estimated emissions are negligible due to the small footprint of the proposal relative to the total seabed area.
- Therefore, a conclusion of **negligible adverse significance is reasonable**

The structure of the assessment is logical and gives a high-level overview of blue carbon, however, there is a general lack of detail. For example, within Section 4, the assessment methodology highlights sources of information but does not detail how the information was used within the assessment.

Section 3 provides an overview of the impacts on blue carbon; however, we disagree that the main pathways of effect will be related to activities that disturb the top layers of sediment only (Section 3.1.1). Activities that disturb sediment below surface will likely have an impact on the long-term carbon store and should also be acknowledged in assessment of impacts, even if it is currently difficult to calculate the extent/ significance of that impact. Disturbance to deeper sediments can disturb long-term buried carbon by potentially introducing oxygen into anoxic layers, which could stimulate remineralisation and a potential turnover of otherwise stable organic carbon (OC) (Macreadie, *et al.,* 2019)[13]. We recommend that future Blue Carbon Assessments should include disturbance to sub-surface sediments as an impact pathway.

There appears to be a misunderstanding of blue carbon science within the assessment, which lies in not distinguishing between organic and inorganic carbon. When sediment is disturbed, it is only the OC fraction that has the potential to be remineralised and converted to CO_2 – this fraction of the carbon pool has relevance to carbon emissions with the potential to contribute to climate

[12] Howard, J., Sutton-Grier, A. E., Smart, L. S., Lopes, C. C., Hamilton, J., Kleypas, J., … Landis, E. (2023). Blue carbon pathways for climate mitigation: Known, emerging and unlikely. *Marine Policy*, *156*(August), 105788. https://doi.org/10.1016/j.marpol.2023.105788

[13] Macreadie, P. I., Atwood, T. B., Seymour, J. R., Fontes, M. L. S., Sanderman, J., Nielsen, D. A., & Connolly, R. M. (2019). Vulnerability of seagrass blue carbon to microbial attack following exposure to warming and oxygen. *Science of the Total Environment*, *686*, 264–275. https://doi.org/10.1016/j.scitotenv.2019.05.462

change. Inorganic carbon is not converted to CO_2 when disturbed and can therefore be considered irrelevant to the potential emissions impacts (Turrell, et al., 2023)[14]. The emissions values relating to the inorganic carbon fraction can be disregarded from Section 7/ Table 7-1).

The Blue Carbon Assessment (Section 3.1.5) has considered (Volume 3 Chapter 9: Appendix 9.1) whether other blue carbon habitats are present within the footprint of the proposal and includes the impacts of the cable corridor up to mean high water spring (MHWS), which is welcome and should be included in future Blue Carbon Assessments as an example of good practice. Kelp is noted as present at the location of landfall, however there should be limited impact on kelp due to the proposed use of HDD underneath the habitat to the point of cable surfacing above MHWS.

Coastal and inshore blue carbon habitats, including saltmarsh, intertidal seagrass and muds, and kelp beds could overlap with proposed infrastructure. We therefore recommend that future Blue Carbon Assessments include a review of habitat extent distribution across the entire footprint of the proposal to assess impacts and inform potential mitigation.

We have not been able to fully assess the findings within the 'Impact Assessment' in Section 7, due to the lack of detail and clarity. The reported values of maximum disturbance do not align with those reported in Table 6-1, for example:

Temporary habitat disturbance (area)

	Presented in Table 6-1	Presented in Section 7.1.2
Construction phase	7,731,870 m^2	7.68 km^2
Operation and maintenance phase	1,930,600 m^2	1.61 km^2

Section 7.1.5 highlights a range of carbon density values from two sources that are not relevant to the assessment and cause some confusion as to why they are present. Their use of OC density values as reported by (Smeaton, et al., 2021)[15] is more appropriate (7.1.6), and the calculation of an average OC density value is a reasonable approach given the lack of sample data. However, as the Applicant has conducted baseline surveys which indicate a large proportion of sandy and gravelly sediments, the assessment could have made use of more specific sediment OC density values as reported in (Smeaton, Austin, & Turrell, 2020)[16]. The calculation for average sequestration rates in 7.1.7 lacks detail and is of limited value. We currently do not have a good understanding or data for seabed sequestration rates, and we wouldn't expect an assessment to try and calculate this as results would be highly uncertain. Future Blue Carbon Assessments may acknowledge these limitations and consider the impacts of the operational scheme on sediment

[14] Turrell, W. R., Austin, W. E. N., Philbrick, S. P., Tilbrook, C., & Kennedy, H. (2023). Clarifying the role of inorganic carbon in blue carbon policy and practice. *Marine Policy*, *157*(October), 105873. https://doi.org/10.1016/j.marpol.2023.105873

[15] Smeaton, C., Hunt, C. A., Turrell, W. R., & Austin, W. E. N. (2021). Marine Sedimentary Carbon Stocks of the United Kingdom's Exclusive Economic Zone. *Frontiers in Earth Science*, *9*(March), 1–21. https://doi.org/10.3389/feart.2021.593324

[16] Smeaton, C, Austin, W., & Turrell, W. R. (2020). Re-Evaluating Scotland's Sedimentary Carbon Stocks Scottish Marine and Freshwater Science Vol 11 No 2, *11*(2). https://doi.org/10.7489/12267-1

accumulation and potential scour impacts and the impact of decommissioning too, as noted previously.

Section 7.1.8 lacks detail and has inaccuracies which should be reviewed, and the method of emissions calculations should be laid out more clearly in future assessments. For instance, it is possible to roughly estimate a carbon stock using carbon density and total area, however, to convert to carbon dioxide equivalent (CO_2e), a conversion factor of 3.67 is required. Therefore, the total emissions calculated are likely to be a factor of 3.67 too low. As previously noted, there is no requirement to calculate the emissions associated with inorganic carbon. The assumption that 100% of the OC disturbed will be lost is an over-estimation but can account for some of the deeper sedimentary OC that has not been considered. We agree with the assessment that the receptor sensitivity is considered as high (The receptor is deemed to be of high vulnerability, low recoverability and high value).

Overall, the approach to the assessment could be improved by focussing on more relevant information and improving clarity of the assessment steps. Despite the lack of detail given with regards to the calculation for carbon emissions, the assessment that the significance of the impact on blue carbon is likely to be negligible (7.1.9 pg. 127), is reasonable.

Worst Case Design Scenario

Section 6 clearly sets out the worst-case design scenario, and we agree with the assessment of permanent and temporary impacts during the construction and operation and maintenance phases. However, we note there is no indication of depth of impact from the various activities which is relevant.

This section does not present a worst-case design scenario for disturbance during the decommissioning phase (see Section 7.1.2); which will vary depending on whether the foundations are removed or kept in place.

Furthermore, we note that the Benthic, Subtidal, and Intertidal Ecology chapter includes the impact pathway (Impact 9): "*Changes in physical processes resulting from the presence of the subsea infrastructure associated with the Proposed Development e.g., scour effects, changes in wave/ tidal current regimes and resulting effects on sediment transport*". We advise that future Blue Carbon Assessments should also include this as an impact pathway as sediment and associated carbon accumulation may result from the proposal (Daewel, et al., 2022[17]; Watson et al., 2024[18]). This could be further impacted at decommissioning stage, although the impact is likely to be negligible given relatively low sediment accumulation rates in the North Sea, noting that this does vary spatially (Diesing, Thorsnes, & Bjarnadóttir, 2021)[19].

[17] Daewel, U., Akhtar, N., Christiansen, N., & Schrum, C. (2022). Offshore wind farms are projected to impact primary production and bottom water deoxygenation in the North Sea. *Communications Earth and Environment*, *3*(1), 1–8. https://doi.org/10.1038/s43247-022-00625-0

[18] Watson, S. C. L., Somerfield, P. J., Lemasson, A. J., Knights, A. M., Edwards-Jones, A., Nunes, J., … Beaumont, N. J. (2024). The global impact of offshore wind farms on ecosystem services. *Ocean and Coastal Management*, *249*(September 2023). https://doi.org/10.1016/j.ocecoaman.2024.107023

[19] Diesing, M., Thorsnes, T., & Rún Bjarnadóttir, L. (2021). Organic carbon densities and accumulation rates in surface sediments of the North Sea and Skagerrak. *Biogeosciences*, *18*(6), 2139–2160. https://doi.org/10.5194/bg-18-2139-2021

Cumulative assessment

The Blue Carbon Assessment presented does not include a cumulative assessment. We advise that future assessments should consider the cumulative impacts of disturbance from other developments, including on longer-term carbon stored buried deeper. While there is a suggestion within the literature, that there may be an increase in accumulation of sedimentary OC as result of the infrastructure on modifying current speeds, it is unlikely that this will compensate for sediment disturbance and loss over the lifetime of the proposal.

Mitigation and monitoring

No mitigation or monitoring is proposed for Blue Carbon, which is in line with the negligible Magnitude and no significance of effect.

JNCC ADVICE ON MUIR MHÒR OFFSHORE WIND FARM

APPENDIX F – JNCC ADVICE ON TURBOT BANK NCMPA (JNCC REF: OIA-10594)

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 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 Muir Mhòr Offshore Wind Farm Environmental Impact Assessment (EIA) to provide a view on nature conservation matters related to the Turbot Bank Nature Conservation Marine Protected Area (NCMPA) which is located adjacent to the development area.

The following advice relates to Marine Protected Areas (MPAs) within the offshore environment, extending out from the 12nm limit. For all other advice, we defer to NatureScot.

Overall comments

The project is located adjacent to the Turbot Bank NCMPA, which is itself situated to the South of the export cable corridor and West of the Array Area. There is an embedded commitment detailed within Volume 2, Chapter 10 (Fish and Shellfish Ecology) of the EIA that states that the NCMPA will not be crossed by the export cable corridor.

Turbot Bank NCMPA

Turbot Bank NCMPA is designated for sandeel. The current conservation objective for Turbot Bank NCMPA is to maintain the sandeel in 'Favourable Condition', meaning that the quality and quantity of its habitat and the composition of its population are such that they ensure that the population is maintained in numbers which enable it to thrive. We take this opportunity to emphasise the importance of assessing all potential operational impact-pathways in combination with the Site Information Centre documents on the JNCC website: https://jncc.gov.uk/our-work/turbot-bank-mpa/.

Any sediment plumes generated by activities relating to the Muir Mhòr Wind Farm could settle on habitat that is currently suitable for sandeel, potentially preventing sandeel settlement. It should also be noted that during the summer, sandeel emerge to feed and increase their bodyweight. We note the inclusion of sediment plume modelling presented in Volume 3, Appendix 7.1.

On reviewing the assessment JNCC advice is that any impacts on sandeel would be small scale and short term in nature. We would expect to see any commitments to avoiding the MPA realised with a licence condition. To further limit any impacts to sandeel it would be beneficial to explore mitigation measures to minimise plume-generating activities during the summer period.

NatureScot Ornithology

[Redacted]

Marine Directorate
Scottish Government
Marine Laboratory
Aberdeen
AB11 9DB

04 March 2025

Our ref: CNS REN OSWF Muir Mhor

Sent by email only

Dear [Redacted]

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND A MARINE LICENCE UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND PART 4 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE THE MUIR MHÒR OFFSHORE WINDFARM, APPROXIMATELY 63 KM OFF THE COAST OF PETERHEAD

NATURESCOT ADVICE ON ORNITHOLOGICAL IMPACTS

Thank you for consulting NatureScot on the Section 36 and Marine Licence applications submitted by Muir Mhòr Offshore Wind Farm Limited (the Applicant) for the proposed Muir Mhòr Offshore Wind Farm. These are accompanied by an Environmental Impact Assessment Report (EIA Report), Report to Inform Appropriate Assessment (RIAA), as well as a Derogation Case - submitted on a without prejudice basis.

This response incorporates our advice on ornithological impacts across the EIA Report, RIAA and Derogation Case. Thank you for granting an extension to consider these aspects fully. We previously advised on all aspects other than ornithology in our response letter dated the 31st January 2025.

Our advice in this letter is in relation to the Array Area, the Offshore Export Cable Corridor (ECC) and landfall (up to MHWS only). Onshore components will be subject to separate terrestrial planning applications.

NatureScot advice

We provide detailed advice in relation to the ornithological impacts across the EIA, RIAA and derogation package within the appendices.

Ornithology advice

Assessing the impacts of offshore wind development on seabird populations requires the use of baseline data in collision risk modelling (CRM) and assessment of distributional (i.e. displacement and barrier effect) responses. Outputs from these two processes are taken forward to apportioning and population viability assessment (PVA). These outputs inform our assessment and ultimately our conclusions.

NatureScot Guidance Note 8 – consideration of distributional impacts – sets out circumstances where the SeabORD tool should be used to model distributional response, and where a matrix approach should be used. Our position is that SeabORD is the more biologically accurate model.

We acknowledge the effort taken by the Applicant to run the SeabORD model to determine the predicted impacts arising from distributional responses for the appropriate species and SPAs. However, the outputs presented by the Applicant are highly unusual, in some cases even predicting positive effects upon seabird populations.

After detailed inspection of the inputs and outputs of the SeabORD model, it appears likely that the distance decay function used does not appropriately account for connectivity between the development and designated sites. Despite pre-application consultation with the Applicant regarding their use of SeabORD MATLAB, it was only after investigating the inputs and outputs of the model in detail within the application and supporting information that we were able to identify these issues. Further detail is provided in the relevant Appendix below.

Therefore, due to these issues with SeabORD, and their cascading effects on apportioning and PVA, we are unable to reach conclusions with respect to the species/SPA colony combinations listed below and require additional information before providing our final ornithology advice, both under EIA and HRA.

- Troup, Pennan and Lion's Heads SPA – guillemot, razorbill, kittiwake
- Buchan Ness to Collieston Coast SPA – guillemot, kittiwake
- Fowlsheugh SPA – razorbill, kittiwake
- Forth Islands SPA – puffin, kittiwake
- East Caithness Cliffs SPA – kittiwake
- St Abb's Head to Fast Castle SPA – kittiwake

Additionally we note there may be a need to provide additional information for:

- Farne Islands and Coquet Island for puffin, but advice should be sought from Natural England.

We suggest the following options to resolve the issues encountered with SeabORD MATLAB:

1. The Applicant can repeat the apportioning and PVA elements of the assessment, using displacement matrix outputs to inform the predicted mortality from distributional responses for kittiwake, guillemot, razorbill and puffin.
2. The Applicant can repeat the SeabORD model in MATLAB using an adjusted distance decay value to determine bird distribution, ensuring that a suitable number of birds are predicted to enter the development footprint, in consultation with NatureScot. Once values are calculated, the Applicant can repeat the apportioning and PVA elements of the assessment with the new SeabORD MATLAB outputs. We note that the SeabORD MATLAB version does

not allow for simultaneous runs, and therefore this option may be significantly more time-consuming than the other options presented here.

3. The Applicant is provided access to the SeabORD-R tool by UKCEH/Marine Directorate to re-run SeabORD, in consultation with NatureScot. Then as above, the Applicant can repeat the apportioning and PVA elements of the assessment with the new SeabORD-R outputs. We note that the SeabORD-R version allows for simultaneous runs, and therefore this option may be more efficient, depending on the tool availability timescales.

We understand that other offshore wind developers are likely to be using the SeabORD approach and could be facing similar issues. Therefore, we have worked in collaboration with UKCEH (SeabORD application developers) to investigate these issues and have set out potential ways forward in this advice to MD-LOT.

Separate to the above issues with SeabORD, there are various further aspects where we request clarification, including:

- Designated sites – St Abb's Head to Fast Castle Special Protection Area (SPA) – distances from the development to this site appear incorrect. We request clarification regarding which distances have been carried through to the apportioning stage, as this may impact the weighting for kittiwake.
- Assessment approach – breeding season population – colony counts – there are several instances where recent colony counts have not been used. We request clarification from the Applicant regarding why the more recent population counts were not used in the assessment and commentary around the likely implications of this decision.
- CRM – kittiwake – there are discrepancies between monthly/ seasonal/ annual collision mortality totals. We require apportioning and PVA to be repeated with the correct seasonal and annual collision mortality totals, unless the Applicant can justify the discrepancy through the presentation of the raw model outputs.
- Apportioning – kittiwake in the breeding season – there are errors in the mortality figures used and subsequently in survival rates. We require displacement, CRM, apportioning and PVA to be repeated with the resulting percentage point change in survival rate presented, unless the Applicant can justify that the errors do not result in significant changes to the PVA outcomes.
- PVA – some species have been excluded from cumulative assessment on the basis that proposal-alone effects are below the relevant threshold. This is incorrect. We request that cumulative impact values are presented to determine whether a cumulative PVA is required for Arctic tern, great black-backed gull, fulmar, Manx shearwater, and red-throated diver.

Despite these issues, we have used the current assessment to reach an interim view, where possible, for certain sites and species. This advice is subject to results of the potential for re-apportionment and matters associated with the displacement assessment, as requested above.

EIA Conclusions

Broadly, we agree with the EIA Report conclusions for ornithology, which concludes no significant impacts, both alone and cumulatively. However, subject to the issues discussed above, namely SeabORD, and the cascading effects on apportioning and PVA, **we are unable to provide advice for guillemot, kittiwake, puffin or razorbill based on the current information in the application.**

For gannet, we provide provisional advice dependent on the issues around population counts highlighted above, whereby impacts are **not significant**. For herring gull, we provide final advice, whereby impacts are **not significant**.

For Arctic tern, great black-backed gull, fulmar, Manx shearwater, and red-throated diver, we are content with the proposal alone conclusions, whereby impacts are **not significant** in EIA terms. However, **we are unable to provide advice regarding cumulative impacts for these species based on the current information in the application,** as above.

RIAA Conclusions

Broadly, we agree with the RIAA conclusions for the proposal alone, such that we can **provisionally advise no adverse effects on site integrity** (AEoSI). However, this is subject to the issues highlighted above, where we require additional information and/or clarifications before providing our final advice.

Where we provide advice on in-combination impacts, our assessment is based on the qualifying species and sites in-combination for all projects and plans including Berwick Bank and Green Volt, with further explanation provided in the relevant Appendix below.

With respect to Scottish SPAs, we **provisionally conclude an adverse effect on site integrity (AEoSI) in-combination** for:

- Forth Islands SPA – gannet
- North Caithness Cliffs SPA – kittiwake and puffin
- West Westray SPA – kittiwake

This advice is subject to the issues identified above as requiring clarification.

Additionally, we can provide **final advice** for the following Scottish SPAs, where we are **unable to conclude no AEoSI in-combination**:

- Sule Skerry and Sule Stacks SPA – gannet

A summary of our conclusions can be found in Table A5, under the RIAA – Summary – in-combination assessment section.

Derogation advice

We welcome that the Applicant has initiated consideration of compensation measures, and we request ongoing involvement to advise on the ecological effectiveness of any required compensation measure(s).

Our understanding of the compensation measures put forward by the Applicant is provided below, this includes our initial view on the principle of each measure. Our advice is focussed on ecological feasibility of compensation measures, and at present we advise there is insufficient information to have confidence that the proposed measures are likely to compensate for the predicted impacts of the proposal to seabirds.

Further detailed advice on the proposed compensation measures within the derogation case is provided in Appendix B, and summarised here:

Artificial nesting structures for kittiwake

The Applicant proposes to build Artificial Nesting Structures (ANS) or metal ledge "hammocks" into the cliffs at existing non-SPA colonies along the Scottish east coast to optimise kittiwake productivity by addressing nest structure integrity issues. At this point in time, we do not support this potential measure, as nesting habitat is not generally considered to be a limiting factor for kittiwake in Scotland. There are other factors causing the decline in kittiwake populations and we recommend progressing other compensation measures which will be of wider benefit to the kittiwake populations impacted by the development.

Predator control

Developing a rodent eradication programme on Inchkeith (brown rat and house mouse) and Inchcolm (black rat) is proposed in the first instance. The Applicant acknowledges that Berwick Bank has previously proposed rodent eradication at Inchcolm, although the outcome of the Berwick Bank application is currently uncertain. We defer to Marine Directorate regarding the ability to secure this measure given the Berwick Bank application is still under determination.

Additionally, the Applicant proposes to fund the continuation of the Scottish Invasive Species Initiative (SISI) Mink Control Project (MCP) with objectives to further intensify trapping effort and increase the geographical coverage of control areas targeting American mink - an invasive non-native species.

Overall, we agree that these proposed measures have potential to compensate for impacts from offshore wind. However, further detail is required.

Disturbance reduction

The Applicant proposes to address human disturbance from recreational activities (clay shooting range, boat tourism, watersports, rock climbing) at non-SPA colonies along the east coast of Scotland (Stonehaven to Aberdeen, and North and South Sutors coastline). It is proposed that this will predominantly be achieved through public outreach and education programmes. Moreover, the Applicant has proposed a partnership with the Scottish Seabird Centre to develop a tailored education and outreach programme, which would involve the education of visitor and tourism companies on and surrounding the Firth of Forth, alongside other interventions, such as engagement with fishers.

Overall, we agree that these proposed measures have potential to compensate for impacts from offshore wind. However, further detail is required.

Further information and advice

We hope this advice is helpful. Please contact Caitlin Cunningham (caitlin.cunningham@nature.scot) or Harriet Tyley (harriet.tyley@nature.scot) in the first instance for any further advice, copying in our marine energy mailbox – marineenergy@nature.scot.

Yours sincerely,

[Redacted]

Marine Energy Programme Manager

Contents

NATURESCOT ADVICE ON MUIR MHÒR OFFSHORE WIND FARM

APPENDIX A – OFFSHORE AND INTERTIDAL ORNITHOLOGY

Offshore and intertidal ornithological interests are considered in Chapter 11 and Appendixes 11.1 to 11.6 (together with supporting annexes) of the Muir Mhòr EIA Report, as well as Section 6.3, 7, 8.2 and 9.3 of the RIAA.

We acknowledge the effort taken by the Applicant to run the SeabORD model to determine the predicted impacts arising from distributional responses for the appropriate species and SPAs. However, the outputs presented by the Applicant are highly unusual, in some cases even predicting positive effects upon seabird populations.

After detailed inspection of the inputs and outputs of the SeabORD model, it appears likely that the distance decay function used does not appropriately account for connectivity between the development and designated sites. Despite pre-application consultation with the Applicant regarding their use of SeabORD MATLAB, it was only after investigating the inputs and outputs of the model in detail that we were able to identify these issues. Further detail is provided in the relevant section below.

Therefore, due to these issues with SeabORD, and their cascading effects on apportioning and PVA, we are unable to reach conclusions with respect to the species/SPA colony combinations listed below and require additional information before providing our final ornithology advice, both under EIA and HRA.

- Troup, Pennan and Lion's Heads SPA – guillemot, razorbill, kittiwake
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- East Caithness Cliffs SPA – kittiwake
- St Abb's Head to Fast Castle SPA – kittiwake

Additionally we note there may be a need to provide additional information for:

- Farne Islands and Coquet Island for puffin, but advice should be sought from Natural England.

We suggest the following options to resolve the issues encountered with SeabORD MATLAB:

1. The Applicant can repeat the apportioning and PVA elements of the assessment, using displacement matrix outputs to inform the predicted mortality from distributional responses for kittiwake, guillemot, razorbill and puffin.
2. The Applicant can repeat the SeabORD model in MATLAB using an adjusted distance decay value to determine bird distribution, ensuring that a suitable number of birds are predicted to enter the development footprint, in consultation with NatureScot. Then as above, the Applicant can repeat the apportioning and PVA elements of the assessment with the new SeabORD MATLAB outputs. We note that the SeabORD MATLAB version does not allow for simultaneous runs, and therefore this option may be significantly more time-consuming than the other options presented here.
3. If timescales allow, the Applicant be provided access to the SeabORD-R tool by UKCEH/Marine Directorate and re-run SeabORD, in consultation with NatureScot. Then as

above, the Applicant can repeat the apportioning and PVA elements of the assessment with the new SeabORD-R outputs. We note that the SeabORD-R version allows for simultaneous runs, and therefore this option may be more efficient, depending on the tool availability timescales.

Separate to the above issues with SeabORD, there are various further aspects where we request clarification, including:

- Designated sites – St Abb's Head to Fast Castle Special Protection Area (SPA) – distances from the development to this site appear incorrect. We request clarification regarding which distances have been carried through to the apportioning stage, as this may impact the weighting for kittiwake.
- Assessment approach – breeding season population – colony counts – there are several instances where recent colony counts have not been used. We request clarification from the Applicant regarding why the more recent population counts were not used in the assessment and commentary around the likely implications of this decision.
- CRM – kittiwake – there are discrepancies between monthly/ seasonal/ annual collision mortality totals. We require apportioning and PVA to be repeated with the correct seasonal and annual collision mortality totals, unless the Applicant can justify the discrepancy through the presentation of the raw model outputs.
- Apportioning – kittiwake in the breeding season – there are errors in the mortality figures used and subsequently in survival rates. We require displacement, CRM, apportioning and PVA to be repeated with the resulting percentage point change in survival rate presented, unless the Applicant can justify that the errors do not result in significant changes to the PVA outcomes.
- PVA – some species have been excluded from cumulative assessment on the basis that proposal-alone effects are below the relevant threshold. This is incorrect. We request that cumulative impact values are presented to determine whether a cumulative PVA is required for Arctic tern, great black-backed gull, fulmar, Manx shearwater, and red-throated diver.

Despite these issues, we have used the current assessment to reach an interim view, where possible, for certain sites and species. This advice is subject to results of the potential for re-apportionment and matters associated with the displacement assessment, as requested above.

EIA Summary

Broadly, we agree with the EIA Report conclusions for ornithology, which concludes no significant impacts, both alone and cumulatively. However, subject to the issues discussed above, namely SeabORD, and the cascading effects on apportioning and PVA, **we are unable to provide advice for guillemot, kittiwake, puffin or razorbill based on the current information in the application.**

For gannet, we provide provisional advice dependent on the issues around population counts highlighted above, whereby impacts are **not significant**. For herring gull, we provide final advice, whereby impacts are **not significant**.

For Arctic tern, great black-backed gull, fulmar, Manx shearwater, and red-throated diver, we are content with the proposal alone conclusions, whereby impacts are **not significant** in EIA terms. However, **we are unable to provide advice regarding cumulative impacts for these species based on the current information in the application,** as above.

RIAA Summary

Broadly, we agree with the RIAA conclusions for the proposal alone, such that we can **provisionally advise no adverse effects on site integrity** (AEoSI). However, this is subject to the issues highlighted above, where we require additional information and/or clarifications before providing our final advice.

For in-combination impacts, our assessment is based on the qualifying species and sites in-combination for all projects and plans including Berwick Bank and Green Volt, with further explanation provided in the relevant section below.

With respect to Scottish SPAs, we **provisionally conclude an AEoSI in-combination** for:

- Forth Islands SPA – gannet
- North Caithness Cliffs SPA – kittiwake and puffin
- West Westray SPA – kittiwake

This advice is subject to the issues highlighted under requested clarifications above.

Additionally, we can provide **final advice** for the following Scottish SPAs, where we are **unable to conclude no AEoSI in-combination**:

- Sule Skerry and Sule Stacks SPA – gannet

As such, a derogation case will be required, with advice provided in Appendix B to our response.

A summary of our conclusions can be found in Table A5, under the RIAA – Summary – in-combination assessment section.

Baseline characterisation

The Offshore Ornithology Baseline Report is provided in Volume 3, Chapter 11, Appendix 11.1. The Applicant undertook two years of Digital Aerial Surveys (DAS) across the array area and Export Cable Corridor (ECC) with a 4km buffer.

Surveys were flown from April 2021 to March 2023 inclusive, with missed surveys in May 2021, December 2022 and January 2023, however, supplementary surveys were undertaken in early June 2021 and early February 2023, which is appropriate. For the missed December 2022 flight, a replacement was undertaken in late January 2023, which is a large date difference. It is not clear if this was highlighted to NatureScot prior to the submission of the application.

Designated sites

Table 11-10 details the designated sites and qualifying species considered within the EIA Report. However, there are errors associated with Table 11-10 that have implications for the overall assessment and conclusions, as detailed below.

Moray Firth SPA

- This designated site is not included in the application.
- The following species are designated in the non-breeding season: common scoter, eider, great northern diver, goldeneye, long-tailed duck, red-breasted merganser, red-

throated diver, scaup, Slavonian grebe, and velvet scoter. Additionally, shag is a designated species in the breeding and non-breeding season.

- **Further advice in relation to the Moray Firth SPA is provided under RIAA – Marine SPAs below.**

St Abb's Head to Fast Castle SPA

- Distances to ECC and array each appear greater than they should be. Measurements show distance to array should be approximately 184km (stated as 193.63km) and to the ECC 175km (stated as 184.49km).
- **We request clarification regarding which distances have been carried through to the apportioning stage, as this may impact the weighting for kittiwake.**

Additionally, there are several minor errors in the species / sites included in Table 11-10. The following errors have minimal implications because the relevant species / sites are taken through to the assessment and discussed in the RIAA correctly, however, we highlight them below for completeness.

Copinsay SPA

- Fulmar is a qualifying species at this SPA with connectivity to the development but is missing from Table 11-10.
- Guillemot is included as a qualifying species with connectivity to the development, but the SPA is outwith MM+1SD foraging range of this species. However, this error is not carried through from modelling to apportioning so there are no implications.
- Puffin is included as a qualifying species but is not a designated feature of the SPA. However, this error is not carried through from modelling to apportioning so there are no implications.

Dornoch Firth and Loch Fleet SPA and Ramsar

- Wigeon is designated as a non-breeding species at this SPA and Ramsar but is not included in this table.

Fetlar SPA

- Site not included in this table.
- Fulmar and great skua are designated species of the SPA with foraging range connectivity to the development.

Firth of Forth SPA, Ramsar and SSSI

- Cormorant, ringed plover, scaup, shelduck, Slavonian grebe, turnstone, wigeon and velvet scoter are designated species at this SPA, Ramsar and SSSI but are not included in this table.
- Sandwich tern are designated as a qualifying species on passage, but are not included in this table.

Hoy SPA

- Guillemot is included as a species with connectivity to the development but is outwith MM+1SD foraging range of the development. However, this error is not carried through to apportioning so there are no implications.

Inner Moray Firth SPA (and Ramsar)

- This designated site is not included in this table. However, the "Inner Moray Estuary SPA" is included within the RIAA. There is no Scottish SPA by this name and so we believe that this is in reference to the Inner Moray Firth SPA instead.

Mousa SPA

- This is incorrectly stated as 'Moussa SPA'.

North Rona and Sula Sgeir SPA (and SSSI)

- Puffin and kittiwake are included in this table as designated features of the SPA in the breeding season with connectivity with the development but are outwith MM+1SD foraging range. However, this error is not carried through to apportioning so there are no implications.

Outer Firth of Forth and St Andrews Bay Complex SPA

- Guillemot and razorbill are included as qualifying species of the SPA in the breeding season with connectivity to the development but are outwith MM+1SD foraging range. However, this error is not carried through to apportioning so there are no implications.
- Black-headed gull, common gull, little gull, red-throated diver and shag are designated as qualifying species in the non-breeding season but are not included in this table.

Troup, Pennan and Lion's Heads SPA

- This is incorrectly stated as 'Troup, Pennen and Lion's Heads SPA'.

Ythan Estuary, Sands of Forvie and Meikle Loch SPA

- This designated site is not included in this table but is approximately 10km from the ECC and 67km from the array area.
- Eider, lapwing, pink-footed goose and redshank are designated as qualifying species in the non-breeding season.

Assessment approach

We broadly support the assessment approach set out in the EIA Report and RIAA, which generally follows the Scoping Opinion, our pre-application advice and published guidance, with some exceptions which are discussed below.

Magnitude criteria

In Section 11.13, the Applicant sets out the criteria to determine the magnitude and they are such that impacts would likely only be considered significant in EIA terms in circumstances of very high impacts, where baseline mortality increases by more than 1% because of the proposal. Thus, we consider that the scores assigned are underplaying the magnitude of some of the impacts.

Furthermore, we note an error with how magnitude has been assessed using this approach. The Applicant has presented the percentage point decrease in survival rate, which is a substantially lower number than the corresponding increase in baseline mortality. The implication of using this metric of impact incorrectly is that the Applicant has based conclusions of impact magnitude on a substantially lower number than intended. Change in survival may be used as criteria to inform

impact magnitude (with appropriate thresholds), but this was not stated by the Applicant in Table 11-17, which further underplays the magnitude of some of the impacts.

For example, in the assessment of collision risk impacts on great black-backed gull from the proposal alone, the Applicant predicts 17.42 mortalities per annum in a regional population of 91,399 individuals resulting in a 0.019% increase in baseline mortality. When considering an adult survival rate of 0.93 (Horswill & Robinson, 2015), the baseline mortality of this regional population is 6,934 individuals. Considering the predicted collision mortality per annum relative to the regional population baseline mortality results in an increase in baseline mortality of 0.272% and a reduction in annual survival rate of 0.019 percentage points. As a result, following the Applicant's criteria for classifying the magnitude of an impact (Table 11-17), the corrected increase in baseline mortality changes the impact magnitude from 'Negligible' to 'Low'.

Therefore, we advise that revisions to the magnitude scoring are required for various impacts. Table A1 below presents the increase in baseline mortality for each species as a result of each of the impacts presented in the EIA Report. We have made our own assessment of impact magnitude and compared this against the impact magnitude stated by the Applicant, highlighted in red where this differs. Our magnitude conclusions are largely based on the thresholds of percentage increase in baseline mortality as defined by the Applicant in Table 11-17:

- negligible up to 0.1%;
- low up to 1%;
- medium up to 5%; and
- high over 5% increase in baseline mortality.

However, we have also considered the context of the decrease in survival rate – if this exceeded the threshold for a PVA, this has been classed as medium magnitude. Within the EIA Report, the Applicant does not state the magnitude assigned to the impacts of the high displacement scenario or the combined displacement and collision impacts for relevant species, but these have also been presented in the table below.

The Applicant has correctly based the requirement to run a PVA based on the decrease in survival rate. Moreover, the overall significance of impacts is based on the resulting PVA magnitudes (i.e. counterfactual of final population size/ counterfactual of population growth rate (CPS/CGR), rather than the actual number of mortalities from collision or displacement). Thus, there is no further implication of this error other than what is presented here.

Sensitivity criteria

In Section 11.17, the Applicant presents sensitivity scores for disturbance, displacement and collision for all species except migratory non-seabirds. These are derived from multiple sources for disturbance, including Bradbury et al. (2014) and NatureScot (2023) for displacement, and Bradbury et al. (2014) and Furness et al. (2013) for collision.

There are some discrepancies between what is presented by the Applicant and what is cited in the literature. Moreover, Bradbury et al. (2014) is based on birds in English waters only. In the classification of sensitivity to impacts from offshore windfarms, Bradbury et al. (2014) incorporates scores of conservation value and percent of biogeographic population in England during any particular season. As population number and trends of seabirds and inshore waterbirds

differ across the UK, it is likely that the conservation value of a species in England will differ to that in Scotland.

As such, we advise the exclusive use of Wade et al. (2016) to derive scores of vulnerability to marine renewable energy developments, which incorporates conservation value scoring specific to Scottish seabird populations. For our assessment of the EIA conclusions, we have used Wade et al. (2016) to inform our advice.

Table A1. NatureScot comparison of Muir Mhòr EIA Report magnitudes (incorrectly based on decrease in survival) and NatureScot revised scores (based on increase in baseline mortality, as per Muir Mhòr magnitude criteria). Cells shaded in red indicate where our conclusions differ.

Species	Impact	Annual mortalities	Regional pop	Muir Mhòr conclusion of magnitude	Mean adult survival rate*	Baseline mortality	Increase in baseline mortality	Decrease in survival^	NatureScot conclusion of magnitude
Kittiwake	Collision	28.54	233,139	Negligible	0.854	34,038.29	**0.084%**	0.012%	Negligible
Common gull	Collision	<0.01	0	Negligible	Unavailable	N/A	**N/A**	N/A	Negligible
Great black-backed gull	Collision	17.42	91,339	Negligible	0.93	6,393.73	**0.272%**	0.019%	Low
Herring gull	Collision	0.51	4,660	Negligible	0.834	773.56	**0.066%**	0.011%	Negligible
Lesser black-backed gull	Collision	0.00	21,000	Negligible	0.885	2,415.00	**0.000%**	0.000%	Negligible
Sandwich tern	Collision	0.00	0	Negligible	0.898	N/A	**N/A**	N/A	Negligible
Common tern	Collision	0.00	0	Negligible	0.883	N/A	**N/A**	N/A	Negligible
Arctic tern	Collision	0.23	163,930	Negligible	0.837	26,720.59	**0.001%**	<0.001	Negligible
Great skua	Collision	0.00	16,329	Negligible	0.882	1,926.82	**0.000%**	0.000%	Negligible
Gannet	Collision	6.00	458,578	Negligible	0.919	37,144.82	**0.016%**	0.001	Negligible
Fulmar	Collision	1.14	325,995	Negligible	0.936	22,591.68	**0.005%**	<0.001%	Negligible
Kittiwake	Displacement **low**	16.34	233,139	Negligible	0.854	34,038.29	**0.048%**	0.007%	Negligible
Guillemot	Displacement **low**	37.09	90,867	Negligible	0.939	5,542.89	**0.669%**	0.041%	Low
Razorbill	Displacement **low**	7.71	43,663	Negligible	0.895	4,584.62	**0.168%**	0.018%	Low
Puffin	Displacement **low**	17.73	262,629	Negligible	0.906	24,687.13	**0.072%**	0.007%	Negligible
Gannet	Displacement **low**	4.16	458,578	Negligible	0.919	37,144.82	**0.011%**	0.001%	Negligible

Arctic tern	Displacement **low**	2.64	163,930	Negligible	0.837	26,720.59	**0.010%**	0.002%	Negligible
Manx shearwater	Displacement **low**	0.03	921,618	*Not stated*	0.870	119,810.34	**<0.001%**	<0.001%	Negligible
Kittiwake	Displacement **high**	19.41	233,139	*Not stated*	0.854	34,038.29	**0.057%**	0.008%	Negligible
Guillemot	Displacement **high**	107.30	90,867	*Not stated*	0.939	5,542.89	**1.936%**	0.118%	Medium
Razorbill	Displacement **high**	12.51	43,663	*Not stated*	0.895	4,584.62	**0.273%**	0.029%	Low
Puffin	Displacement **high**	18.75	262,629	*Not stated*	0.906	24,687.13	**0.076%**	0.007%	Negligible
Gannet	Displacement **high**	12.48	458,578	*Not stated*	0.919	37,144.82	**0.034%**	0.003%	Negligible
Arctic tern	Displacement **high**	4.41	163,930	*Not stated*	0.837	26,720.59	**0.017%**	0.003%	Negligible
Manx shearwater	Displacement **high**	0.70	921,618	*Not stated*	0.870	119,810.34	**0.001%**	<0.001%	Negligible
Kittiwake	Combined impacts **low**	44.88	233,139	*Not stated*	0.854	34,038.29	**0.132%**	0.019%	Low
Gannet	Combined impacts **low**	10.16	458,578	*Not stated*	0.919	37,144.82	**0.027%**	0.002%	Negligible
Arctic tern	Combined impacts **low**	2.87	163,930	*Not stated*	0.837	26,720.59	**0.011%**	0.002%	Negligible
Kittiwake	Combined impacts **high**	47.95	233,139	*Not stated*	0.854	34,038.29	**0.141%**	0.021%	Medium
Gannet	Combined impacts **high**	18.48	458,578	*Not stated*	0.919	37,144.82	**0.050%**	0.004%	Negligible
Arctic tern	Combined impacts **high**	4.64	163,930	*Not stated*	0.837	26,720.59	**0.017%**	0.003%	Negligible

* Horswill and Robinson (2015).

^ This column is what the Applicant incorrectly states as the increase in baseline mortality in each scenario and is the basis of their magnitude.

Migratory CRM

We acknowledge that work package 2 from the project 'Strategic study of collision risk for birds on migration and further development of the stochastic collision risk modelling tool' is not yet complete and available for use by developers. We are content with the approach the Applicant has used in this application but expect the mCRM tool to be used for future applications once available.

Breeding season population – colony counts

In Volume 3, Appendix 11.1: Offshore and Intertidal Ornithology Baseline Report and Volume 3, Appendix 11.4: Offshore Ornithology Apportioning Report, the Applicant provides colony counts of SPA and non-SPA seabird colonies with connectivity to the proposed development, for the purpose of apportioning impacts to colonies following the apportioning method (NatureScot, 2018). We acknowledge that the Applicant sets out their intention to use colony counts from Seabirds Count: a census of breeding birds in Britain and Ireland (2015-2021) (Burnell et al., 2023), supplemented by more recent population counts in the Seabird Monitoring Programme (SMP) database (Seabird Monitoring Programme, 2024) where appropriate.

However, we note several instances where more recent colony counts were not used for gannet, puffin and kittiwake. Table A2 below presents a comparison between the colony counts provided by the Applicant in Volume 3, Appendix 11.4: Offshore Ornithology Apportioning Report, with more recent available counts, which are contemporaneous with the survey regime conducted to inform the baseline environment (up to and including the year 2023).

Adopting the updated numbers into the assessment would require repeating the apportioning of impacts to individual colonies (and subsequent PVA), with the revised population counts being used to recalculate the apportioning factors for each colony. We do not require apportioning to be redone at this time and overall conclusions will be based on the population counts and apportioning approach provided in the application. **However, we request clarification from the Applicant regarding why the more recent population counts were not used in the assessment and commentary around the likely implications of this decision.**

Table A2. NatureScot comparison of Muir Mhòr colony counts used in the application, compared to the more recent colony counts available.

Species	**SPA**	**Muir Mhòr count (breeding adults)**	**Year**	**Corrected count (breeding adults)**	**Year**
Gannet	Fair Isle	9,654[2]	2023		
	Forth Islands	150,518[1]	2014	103,688[4]	2023
	Hermaness, Saxa Vord and Valla Field	59,124[1]	2021	37,478[2]	2023
	North Rona and Sula Sgeir	18,990[2]	2023		
	Noss	24,670[2]	2023		
	Sule skerry + Sule stack	18,130[1]	2013 - 2018		
	St Kilda	120,580[1]	2013		

	SPA total	401,666		333,190	
	Regional total	458,378		369,902	
Puffin	Coquet Island	50,058[1]	2019		
	Fair Isle	13,332[2]	2015		
	Farne Islands	87,504[1]	2019		
	Forth Islands	90,291[3]	2017 - 2023		
	Hoy	860[3]	2016 - 2017		
	North Caithness Cliffs	5,438[3]	2015 - 2023	3,018[3]	2015 - 2023
	SPA total	247,483		245,063	
	Regional total	262,629		260,209	
Kittiwake	Buchan Ness to Collieston Coast	27,094[2]	2023		
	Calf of Eday	672[1]	2016 - 2018	292[2]	2018
	Cape Wrath	7,244[1]	2017	6,616[2]	2023
	Copinsay	592[2]	2023		
	East Caithness Cliffs	48,958[1]	2015 - 2018		
	Fair Isle	896[1]	2021		
	Farne Islands	7,166*	2023		
	Forth Islands	13,244[3]	2021 - 2023	13,708[2]	2023
	Foula	850[1]	2021		
	Fowlsheugh	30,966[3]	2018 - 2023	40,156[3]	2018 - 2023
	Hoy	532[1]	2016	608[3]	2016 - 2017
	Marwick Head	2,878[2]	2023		
	North Caithness Cliffs	11,142[1]	2015 - 2016	16,424[3]	2015 - 2023
	Noss	172[2]	2023		
	Rousay	660[3]	2016 - 2021		
	St Abb's Head to Fast Castle	9,158[3]	2023		
	Sumburgh Head	1,932[1]	2017 - 2021		
	Troup, Pennan and Lion's Heads	27,344[3]	2017 - 2023^		
	West Westray	4,838[3]	2017 - 2023		
	SPA total	196,338		210,342	
	Regional total	233,139		247,143	

[1]Seabird count (Burnell et al., 2023)

[2]SMP database

[3]Seabird count and SMP database

[4]Harris et al. (2023)

*The Applicant states this as being from Seabird count, but it is from SMP database.

^This was stated incorrectly as 2021-2023 in the apportioning report.

Changes in prey

Section 11.18 provides an assessment of potential impacts to offshore and intertidal ornithological receptors during the construction phase of the proposed development. Paragraph 11.18.98 states

that increases in Suspended Sediment Concentration (SSC) and deposition of disturbed sediments to the seabed as a result of the construction activities of the proposed development would have moderately significant impacts on prey species including herring. This presents a potential indirect effect on seabird species through impacts to the availability of their prey.

As per our response dated 31 January 2025, we highlighted issues regarding the implications for herring and sandeel, as well as the mitigation proposed. Should these issues be addressed and appropriate mitigation secured, then we are content with what is presented in the ornithology assessment.

Artificial lighting

Paragraphs 11.19.53 to 11.19.64 refers to the potential impact of artificial lighting on offshore ornithological receptors during the operation and maintenance phase. As well as turbine lighting, servicing or construction vessel lighting also raises issues, particularly where construction or operation and maintenance works are undertaken on a 24-hour basis. It is likely that artificial lighting associated with offshore structures and vessels will be present during construction, operation and maintenance and decommissioning of the offshore wind farm.

The Applicant correctly refers to Deakin et al. (2022) in the assessment, however, Paragraph 11.19.60 states that the "examples are significantly brighter than the lights associated with an offshore wind farm" and "Given that this lighting is significantly less powerful than in the examples given in Deakin et al. (2022), it is therefore our conclusion that attraction to offshore wind farms is not likely to occur and will not result in a collision risk for species such as shearwaters and petrels".

However, given the uncertainty associated with this potential impact and the vulnerability of shearwaters and petrels to artificial light sources, we advise that a **monitoring proposal to validate the EIA Report predictions and better understand the likelihood of impacts from artificial lighting will be required. It may be that a collective approach to this monitoring could be undertaken by ScotWind developers.** In addition, we recommend that protocols are built into construction and operation phases for monitoring and handling of any birds attracted by lighting, as well as associated recording of any such incidents including context (e.g. weather).

Collision Risk Modelling (CRM)

The methodology of how the Applicant undertook collision risk modelling for seabirds is presented in Volume 3, Appendix 11.2: Offshore Ornithology Collision Risk Modelling Technical Report. The Applicant ran models with model-based and design-based density estimates, and it states that where possible the results taken forward to apportioning were derived from model-based (stochastic) outputs, with design-based (stochastic) estimates carried forward otherwise.

MRSea model-based density estimates

There are several examples where MRSea model-based density estimates have been used as inputs to the CRM inappropriately, resulting in unrealistically high upper confidence interval estimates of collision mortality (e.g. GBBG annual collision upper confidence interval 5.0×10^{284}). Such high confidence interval estimates indicate uncertainty in the values presented from the

model, including the median collision estimate which is carried through the application to inform apportioning and PVA. It appears that the raw counts of flying birds obtained from DAS were too low to be used in MRSea modelling and resulted in unrealistic results. On these occasions, design-based density estimates should have been used in the CRM. This applies to collision risk estimates for great black-backed gull (winter and annual estimates) and herring gull (breeding season, winter and annual estimates).

However, using design-based density estimates in the CRM would result in lower collision estimates. Thus, the approach used by the Applicant has resulted in more precautionary outputs and we are content that further modelling is not required.

Parameters

The Applicant used input parameters set out in NatureScot Guidance Note 7 (NatureScot, 2023) to parameterise the CRM. Paragraph 11.19.42 notes that since running the CRM, the joint advice note from the Statutory Nature Conservation Bodies (SNCBs) regarding bird collision risk modelling for offshore wind developments (JNCC, Natural England, Natural Resources Wales, NatureScot, 2024) has been published and includes updated input parameters recommended by NatureScot for use in the model. The Applicant notes that this was not published in time to adopt these updated parameters, but that a qualitative assessment was undertaken to assess the implications of not using these.

We acknowledge efforts made to qualitatively assess these differences but note a lack of evidence and conclusions of this assessment in the application. The Applicant states that the qualitative assessment resulted in a conclusion of no difference in impact magnitude for any species assessed in the collision risk model, with all impacts remaining at negligible magnitude. However, it is difficult to support this conclusion without a comparison of model outputs from both parameter sets, and we would have appreciated at least one species example of this.

Annual collision totals

Within Volume 3, Appendix 11.2: Offshore Ornithology Collision Risk Modelling Technical Report, there are discrepancies between the seasonal and annual collision mortality estimates, and the sum of monthly collision estimates making up the relevant seasonal and annual periods.

Table 3.1 presents a summary table of seasonal and annual collision mortality estimates for each species modelled, with density estimate inputs derived from design-based estimates, model-based estimates, or a combination of both density estimate types. The monthly collision mortality estimates for each species are presented in Annex B: Seasonal, Annual and Monthly design-based Collision Estimates Table 4.4 and Annex C: Seasonal, Annual and Monthly model-based Collision Estimates Table 4.6. The sum of the relevant monthly collision estimates which fall within each species' bio season does not equal the seasonal totals presented in Table 3.1 of the report.

Table A3 below presents monthly estimates alongside the sum of the relevant monthly estimates for each seasonal total, and the sum of all monthly estimates for the annual collision estimate total. The reported seasonal and annual collision mortality totals are presented for comparison.

Table A3. NatureScot comparison of Muir Mhòr reported monthly collision totals, with the sum presented for the seasonal total and overall annual collision totals, with NatureScot corrected totals. The different colours represent the different seasons, with this patterning carried through to the annual totals. The cells shaded in blue represent overlap months, where the collision total is halved and split between the seasons for that month.

Kittiwake - model-based	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**NatureScot corrected seasonal total**	**Muir Mhòr reported total**
Breeding				1.289	15.960	5.261	12.377	29.848					64.735	61.733
Autumn									0.063	0.284	0.304	0.234	0.885	0.945
Spring	0.524	1.902	4.483	1.289									8.198	8.346
Annual	0.524	1.902	4.483	2.578	15.960	5.261	12.377	29.848	0.063	0.284	0.304	0.234	73.818	69.398
Great black-backed gull* – mixed	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**NatureScot corrected seasonal total**	**Muir Mhòr reported total**
Breeding				0	0	0	0	0					0	0
Non-breed	0.976	0.378	0						0	0	1.219	5.703	8.276	17.422
Annual	0.976	0.378	0	0	0	0	0	0	0	0	1.219	5.703	8.276	17.422
Gannet - mixed	**Jan**	**Feb**	**Mar^**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**NatureScot corrected seasonal total**	**Muir Mhòr reported total**
Breeding			0.120	0.968	0.910	3.509	0.959	1.168	1.520				9.154	9.589
Autumn										2.015	0.149		2.164	2.305
Spring	0	0	0.220										0.220	0.460
Winter												0.133	0.133	0
Annual	0	0	0.340^	0.968	0.910	3.509	0.959	1.168	1.520	2.015	0.149	0.133	11.671	12.600

Herring gull* - model based	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**NatureScot corrected seasonal total**	**Muir Mhòr reported total**
Breeding				0.000	0.026	0.031	0.299	0.031					0.387	0.854
Non-breed	0.048	0	0.069						0	0	0.453	0.121	0.691	1.727
Annual	0.048	0	0.069	0.000	0.026	0.031	0.299	0.031	0	0	0.453	0.121	1.078	4.519
Fulmar - model based	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**NatureScot corrected seasonal total**	**Muir Mhòr reported total**
Breeding				0.009	0.002	0.052	0.060	0.069	0.076				0.268	0.345
Autumn									0.076	0.026			0.102	0.169
Spring	0.021	0.037	0.004									0.032	0.094	0.098
Winter											0.070		0.070	0.070
Annual	0.021	0.037	0.004	0.009	0.002	0.052	0.060	0.069	0.151	0.026	0.070	0.032	0.533	0.682

*For great black-backed gull and herring gull in this table, we have used the seasonal / annual totals presented in the CRM report, where model-based estimates have been used incorrectly. This shows the discrepancies between seasonal / annual collisions and monthly collision as presented in the CRM report.

^March is an overlap month but the values are different for breeding season and spring season. This is because the breeding season uses model-based densities and spring uses design-based densities. We have taken 50% of the relevant monthly collision estimates for each season, i.e. breeding season includes 50% of the March model-based density collision estimate, while spring season includes 50% of the March design-based density collision estimate.

In the case of all species except kittiwake, the seasonal and annual collision mortality totals reported in the CRM report and carried through to apportioning and PVA, are greater than the seasonal and annual totals derived from the sum of the relevant monthly collision estimates. This results in a more precautionary assessment as the actual number of collisions from the model are lower than what is presented.

For kittiwake, the correct seasonal and annual totals are greater than the numbers taken through for further assessment. **Therefore, for kittiwake we require apportioning and PVA to be repeated with the correct seasonal and annual collision mortality totals, unless the Applicant can justify the discrepancy through the presentation of the raw model outputs.**

Distributional responses

The distributional response and mortality rates included for consideration in the assessments are detailed in Table 2.4 (Section 2.1.5) Appendix 11.3: Offshore Ornithology Distributional Responses Report of the EIA Report.

Mean seasonal peak abundances

Section 2.1.4 presents the method used to calculate the mean seasonal peak abundance estimates used as inputs in the displacement matrix approach. Table 2.3 contains errors in the mean seasonal peak abundance numbers. **However, we note that it appears that these errors were not carried through to the displacement matrix assessment**, therefore there should be no implications to the conclusion of impacts to the regional populations in the EIA Report. For completeness, we present the NatureScot corrected totals alongside the Muir Mhòr reported totals in Table A4 below.

Table A4. NatureScot comparison of Muir Mhòr incorrect mean seasonal peak abundance numbers as per Table 2.3 (Vol 3, Appendix 11.3), with NatureScot corrected values.

Species	Displacement area	Season	Muir Mhòr reported values (Table 2.3)	NatureScot corrected values
Guillemot	Array Area	Spring migration	6,723.08	0
	Array Area +2km buffer	Spring migration	11,862.68	0
	Array Area	Over winter	0	6,723.08
	Array Area +2km buffer	Over winter	0	11,862.68
Razorbill	Array Area	Non-breeding total	969.43	1,037.24
	Array Area +2km buffer	Non-breeding total	1,430.0	1,546.62
	Array Area	Spring migration	67.81	67.77
	Array Area +2km buffer	Spring migration	116.58	116.57
	Array Area	Over winter	26.04	26.05

Displacement rates

In Section 2.1.5, the Applicant explains which displacement and mortality rates were used in the displacement matrix assessment. Most of the values used are those recommended in NatureScot Guidance Note 8 (NatureScot, 2023), however the Applicant provides rationale behind the rates used for species which are not included in the guidance note.

For red-throated diver, the Applicant correctly refers to a 100% displacement rate as recommended in the Joint SNCB Interim Advice on the Treatment of Displacement for Red-Throated Diver (Natural England and JNCC, 2022). The Applicant also uses a 1% mortality rate for displaced birds, which is not specified in the advice note referenced, however, we are content with this.

For Arctic tern, the Applicant derives a displacement rate range of 30% to 50% and mortality rate of 3% from the West of Orkney Environmental Impact Assessment. The West of Orkney approach to Arctic tern displacement and mortality rates were agreed in consultation with NatureScot, therefore we accept the use of these rates.

For Manx shearwater, the Applicant derived a displacement rate range of 30% to 70% and mortality rate range of 1% to 10% from the Awel Y Mor Offshore Wind Farm Environmental Impact Assessment, which we accept in the absence of recommended rates in this instance. Going forward, our position on petrels and shearwaters is still developing and may change for future proposals.

We also note that within 9.3.11 of the RIAA it highlights that higher and lower scenarios have been run and presented and that these relate to the distributional responses as described in the Displacement Report (Volume 3, Appendix 11.3), however the words lower and higher are not used to describe the range of mortality outputs within this appendix. It is also noted within this paragraph that the Applicant states "…with 'higher' being the NatureScot advised rates of displacement and displacement mortality used in displacement matrices, and 'lower' being those proposed by the developer". However, this is not accurate as we advise a range of scenarios are run, including a lower level of mortality and a higher level of mortality. We then look at both outcomes to make our assessment.

The narrative provided to support the use of the lower mortality level to undertake the displacement assessment is noted and is highlighted throughout the EIA Report. In our view, the emerging evidence regarding distributional responses is mixed, and insufficiently conclusive for us to change our guidance at this point in time. This may change subject to conclusions from a workshop which took place in the autumn of 2024, bringing together academia, industry, government, NGOs and SNCBs to discuss recently completed research on this topic with a view to updating our guidance. However, although our assessment is based on the NatureScot approach (to evaluate the range of outputs produced), it is useful to see the Applicant's position on this for context and we have considered it.

SeabORD

To assess the distributional responses of seabirds from the proposed development, the Applicant has followed two methods; the displacement matrix approach and SeabORD. The displacement matrix approach is used correctly following NatureScot Guidance Note 8 (NatureScot, 2023) and the Joint SNCB Interim Advice on the Treatment of Displacement for Red-Throated Diver (Natural

England and JNCC, 2022). The SeabORD model (Searle et al., 2018) can currently only be used during the chick-rearing period for: Atlantic puffin, common guillemot, razorbill and black-legged kittiwake.

Sections 2.2-2.3 and 3.2-3.3 of Appendix 11.3 presents the methods and results of the SeabORD model approach to assess the distributional responses of seabirds with connectivity to the proposed development during the chick-rearing season. The Applicant ran the model in MATLAB for the following species/SPA colony combinations:

- Troup, Pennan and Lion's Heads SPA – guillemot, razorbill, kittiwake
- Buchan Ness to Collieston Coast SPA – guillemot, kittiwake
- Fowlsheugh SPA – razorbill, kittiwake
- Forth Islands SPA – puffin, kittiwake
- Farne Islands SPA – puffin
- Coquet Island SPA – puffin
- East Caithness Cliffs SPA – kittiwake
- St Abb's Head to Fast Castle SPA – kittiwake

As indicated above, we note that the Applicant has run the SeabORD model to determine the predicted impacts arising from distributional responses for the appropriate species and SPAs, but we have some concerns with the outputs – with some highly unusual, in some cases even predicting positive effects upon seabird populations.

It appears likely that the distance decay function used does not appropriately account for connectivity between the development and designated sites. Despite pre-application consultation with the Applicant regarding their use of SeabORD MATLAB, it was only after investigating the inputs and outputs of the model in detail that we were able to identify these issues.

Initial inspection of the results revealed several instances of negative additional adult mortality (i.e. a positive effect on mortality) for kittiwake and guillemot, and very low additional adult mortality for kittiwake, razorbill and guillemot. These instances of positive effects or very low mortality are significantly different to the total breeding season distributional response mortality predicted from the displacement matrix approach. This large discrepancy has arisen from a substantial difference between the number of birds recorded in the development footprint in the DAS, compared to the number of birds predicted to enter the footprint in the SeabORD model.

The latter has been determined by a distance decay function bird distribution map as an input to the SeabORD model. We believe that the distance decay value used by the Applicant was not sufficient to predict realistic numbers of birds in the development footprint, which we would expect to be approximate to the number of birds recorded in DAS. This issue was also amplified due to the location of the proposed development approximately 63km offshore and located at the edge of the foraging range of the species modelled from relevant SPAs. Thus, the distance decay function used does not appropriately account for connectivity between the development and designated sites.

As a result of these highly unusual SeabORD outputs, we sought advice from UKCEH, the developers of SeabORD MATLAB and the new SeabORD-R tool (to be released soon), to further understand the results of the model and explore the potential to run the model in the new SeabORD-R tool with adjusted input parameters, including distance decay. Unfortunately, we were

unable to do this as intended due to the R tool (particularly the distance decay function within the R tool) not being fully functional at this time.

Therefore, we are unable to reach conclusions with respect to the species/SPA colony combinations listed above, and require additional information before providing our final ornithology advice, both under EIA and HRA. We suggest the following options to the Applicant to resolve the issues encountered with using SeabORD MATLAB:

1. The Applicant can repeat the apportioning and PVA elements of the assessment, using displacement matrix outputs to inform the predicted mortality from distributional responses for kittiwake, guillemot, razorbill and puffin.
2. The Applicant can repeat the SeabORD model in MATLAB using an adjusted distance decay value to determine bird distribution, ensuring that a suitable number of birds are predicted to enter the development footprint, in consultation with NatureScot. Then as above, the Applicant can repeat the apportioning and PVA elements of the assessment with the new SeabORD MATLAB outputs. We note that the SeabORD MATLAB version does not allow for simultaneous runs, and therefore this option may be significantly more time-consuming than the other options presented here.
3. If timescales allow, the Applicant be provided access to the SeabORD-R tool by UKCEH/Marine Directorate and re-run SeabORD, in consultation with NatureScot. Then as above, the Applicant can repeat the apportioning and PVA elements of the assessment with the new SeabORD-R outputs. We note that the SeabORD-R version allows for simultaneous runs, and therefore this option may be more efficient, depending on the tool availability timescales.

Apportioning

The approach taken to apportioning is discussed in Appendix 11.4: Offshore Ornithology Apportioning Report of the EIA Report. The Applicant has generally followed the approach advised by NatureScot; however we highlight some issues below.

Proportion of foraging area at sea

The approach taken to calculate an apportioning factor for each colony for each species is described in Section 2.4. The Applicant refers to the 'proportion of the foraging range of a colony that is sea area' as an element of the equation to calculate the apportioning factors. However, the value of this at-sea foraging area for each colony and species is not stated, therefore making it impossible to recreate the apportioning factor calculations. We acknowledge that the other elements of the equation (as per NatureScot, 2018) are presented in the Apportioning Report for transparency, showing the steps taken to determine the apportioning factors.

Puffin in the non-breeding season

In Section 2.4.2, the Applicant states that apportioning of impacts to puffin predicted to occur in the non-breeding season would not be undertaken, due to the wide dispersal of the species from breeding season regions at the end of the season. We accept that the nature of puffin to disperse widely and in low densities across wide areas of the North Atlantic Ocean during the non-breeding season makes it difficult to apportion impacts to colonies. However, the Applicant makes several

references to recent NatureScot advice suggesting that non-breeding season impacts do not need to be apportioned for puffin, and while we accept this currently, we have been working with NEEOG to support the development of a new approach to handle impacts to puffin in the non-breeding season.

Our most recent advice would be to follow this new approach when it is finalised, and as members of NEEOG, the Applicant will be aware of this. Although this approach was not finalised in time to be adopted into this application, we anticipate this will be available in the near future and should be used by future applicants wherever possible.

Kittiwake in the breeding season

We are grateful to the Applicant for providing Volume 3, Chapter 11, Appendix 11.5 (Impacts to breeding adults), in Excel format, to allow us to follow the working in the calculation of apportioned impacts to breeding adults from each colony within the regional population. Providing this document in Excel format adds transparency to the process and gives us confidence in the final numbers presented in the EIA Report.

However, in the 'Breeding season' table in the 'Kittiwake' tab, we note some errors in the column 'Breeding season displacement mortality of breeding adults - lower displacement (j)'. The implication of these errors are minor, with a decrease in the percentage point change in survival rate ranging from 0.00000 to 0.00008 as a result of correcting the lower displacement mortality of breeding adults in the breeding season.

Correcting these values does not result in a change in the requirement for a PVA to be undertaken for the regional breeding season population (EIA), or for any individual SPA colony (RIAA). However, despite the small impact on survival rate, this may have implications for conclusions on specific colonies in the RIAA. **We require displacement, CRM, apportioning and PVA to be repeated with the resulting percentage point change in survival rate presented, unless the Applicant can justify that the errors do not result in significant changes to the PVA outcomes.**

Population Viability Analysis

The Applicant's approach to population viability analysis (PVA) is discussed in Appendix 11.5: Offshore Ornithology Population Viability Analysis of the EIA Report. The Applicant has generally followed the approach advised in NatureScot Guidance Note 11 (NatureScot, 2023). The Applicant has correctly determined where a proposal-alone PVA is required based on a threshold of a decrease in adult annual survival of ≥0.02 percentage points from the predicted impacts of the proposal alone. However, to determine where a cumulative PVA is required, it appears the Applicant has assessed the same species and populations which were considered in the proposal-alone PVA, which is incorrect.

Cumulative PVAs will generally be required for all sites and species where the in-combination impacts equal or exceed a 0.02 percentage point change in combined breeding and non-breeding season adult survival rate. (i.e. a ≥0.02 percentage point decrease in survival rate or a ≥ 0.02 percentage point increase in mortality rate). The threshold of 0.02 percentage point decrease in adult annual survival rate applies to both EIA Report and RIAA assessments.

At the time of our pre-application advice to the Applicant, the exception to this is where the proposal contribution to the in-combination impact is less than 0.2 birds per annum. In this case, the impact from the individual proposal is deemed to not make a tangible contribution to the in-combination impacts and therefore a PVA is not required. Where the proposal contribution is less than 0.2 birds per annum, a table should be provided that details by site and species the percentage point changes in adult survival rate and the number of birds impacted per annum. This is to allow for this data to be used in future in-combination assessments for other developments, where necessary.

The Applicant has excluded Arctic tern, great black-backed gull, fulmar, Manx shearwater, and red-throated diver from the cumulative PVAs. While the proposal-alone impacts do not exceed the threshold for PVA, the in-combination impacts to each species should still be assessed to determine the need for a cumulative PVA. It may be the case that the in-combination impacts on each of these species does not equal or exceed the 0.02 percentage point threshold, however this is not presented in the PVA report or in the impact values presented in Volume 3, Chapter 11, Appendix 11.5 Annex B: Cumulative Impact Calculations.

We request that cumulative impact values are presented to determine whether a cumulative PVA is required for Arctic tern, great black-backed gull, fulmar, Manx shearwater, and red-throated diver.

Cumulative Effects Assessment

The assessment has been undertaken without the Cumulative Effects Framework (CEF) tool since this was not published in time for use by the Applicant. To mitigate the tool not being available, the Applicant has instead worked with the Northeast and East Ornithology Group (NEEOG) and NatureScot to determine an interim solution, i.e. a suitable cumulative baseline that can be used by all proposals. Thus, it was agreed with NatureScot that the Royal HaskoningDHV (2024) values would be used, noting that the Applicant has also incorporated impact values for the Ossian proposal as these were published after Royal HaskoningDHV (2024). We are content with this approach.

Consideration of Berwick Bank and Green Volt

PVAs were carried out with and without Berwick Bank, following NatureScot advice (Table 11-2), which is appropriate. However, a decision was made, without consultation with either NatureScot or Marine Directorate, that Green Volt should be included with Berwick Bank, and was excluded from the models that also excluded Berwick Bank; i.e. PVAs were run with and without both Berwick Bank and Green Volt.

The Applicant made this decision based on the Green Volt consent decision letter, whereby it specifies in Paragraph 20 that the consent decision for Green Volt was based on the PVAs that excluded Berwick Bank since “if Berwick Bank is consented, the effects from Berwick Bank on these species/sites will be compensated for and on this basis they were not considered in the in-combination assessment for the Development“ (MD-LOT, 2024).

Green Volt was grouped with Berwick Bank as it was consented with compensation measures in place, and the Applicant assumed that a similar decision would be made by MD-LOT. However, the Applicant has not accounted in the decision letter, the final sentence of Paragraph 20, which

states (emphasis added) "Berwick Bank was considered in the in-combination assessment for those species/sites where it has likely significant effects but no AEOSI".

In the 'without Berwick Bank and Green Volt' scenario, all SPAs have been discounted, including those for Green Volt where no AEoSI was concluded and where impacts were not required to be compensated for, but where there were still impacts. This is our understanding based on what is presented in Appendix 11.5 Annex B (Cumulative Impact Calculations) and comparing the pivot table results to the results in the species PVA input tabs, for sites where we know No AEoSI was concluded for Green Volt.

As a result of this oversight, our assessment is precautionary and is based on the 'with Berwick Bank and Green Volt' scenario only.

EIA Conclusions

Broadly, we agree with the EIA Report conclusions for ornithology, no significant impacts on any species, both alone and cumulatively. However, subject to results of the potential for re-apportionment and matters associated with the displacement assessment as discussed above, **we are unable to provide advice for guillemot, kittiwake, puffin or razorbill based on the current information in the application.**

For gannet we provide provisional advice, dependent on the justification of the colony counts used at Hermaness, Saxa Vord and Valla Field SPA. For herring gull, we provide final advice, which is detailed below.

For Arctic tern, great black-backed gull, fulmar, Manx shearwater, and red-throated diver, we are content with the proposal alone conclusions, whereby impacts are **not significant** in EIA terms. However, as above, we request that cumulative impact values are presented to determine whether a cumulative PVA is required for these species. As such, **we are unable to provide advice regarding cumulative impacts for these species based on the current information in the application.**

Proposal alone

Gannet

We **provisionally** conclude (depending on the justification of the colony count at Hermaness, Saxa Vord and Valla Field SPA) a negligible significance of impact for the regional population of gannet based on the proposal alone assessment, which is **not significant** in EIA terms, based on the following:

- Low sensitivity to distributional response impacts and medium sensitivity to collision impacts
- Negligible magnitude of impact based on an increase in baseline mortality of 0.027 to 0.050% from the proposal-alone.
- Predicted combined distribution response and collision impact of 10.16 to 18.48 birds annually.

Herring gull

We conclude a negligible significance of impact for the regional population of herring gull based on the proposal alone assessment, which is **not significant** in EIA terms, based on the following:

- High sensitivity to collision impacts
- Low magnitude of impact based on an increase in baseline mortality of 0.066% from the proposal-alone.
- Predicted collision impact of 0.51 birds annually

Cumulative

Gannet

We **provisionally** conclude (depending on the justification of the colony count at Hermaness, Saxa Vord and Valla Field SPA) a minor significance of impact for the regional population of gannet based on the cumulative assessment with Berwick Bank and Green Volt (BB/GV), which is **not significant** in EIA terms, based on the following:

- Low magnitude of impact based on:
  - A CPS of 0.921 to 0.884 and CGR of 0.998 to 0.997 with BB/GV after 35 years.
- A proposal-alone mortality contribution of 1.1% with BB/GV.
- An increase of 40% in the Scottish population between Seabird 2000 and Seabird Count censuses.
- A mean colony decrease of UK colonies of 25% after the impacts of HPAI (Tremlett, 2023).

Herring gull

We conclude a negligible significance of impact for the regional population of herring gull based on the cumulative assessment with Berwick Bank and Green Volt (BB/GV), which is **not significant** in EIA terms, based on the following:

- Negligible magnitude of impact based on:
  - A CPS of 0.973 and CGR of 0.999 with BB/GV after 35 years.
- A proposal-alone mortality contribution of 10.3% with BB/GV.
- A decline of 45% in the Scottish population between Seabird 2000 and Seabird Count censuses.

Mitigation

Section 11.14 sets out the embedded mitigation commitments (designed-in measures) of the development in relation to offshore and intertidal ornithological receptors. The commitments listed in Paragraph 11.14.2 do not match those listed in Table F below paragraph 11.14.2. Furthermore, embedded commitment C-06 is absent from Table F but is listed in Volume 3, Appendix 6.1 (Commitments Register) as relating to offshore and intertidal ornithological receptors.

- Paragraph 11.14.2 states the embedded commitments related to offshore and intertidal ornithological receptors are:
  - C-01, C-02, C-08, C-09, C-10, C-29 and C-34.
- The embedded commitments listed in Table F are:

    - C-04, C-05, C-08, C-09, C-10, C-14, C-33, C-35, C-37 and C-40.

- In Volume 3, Appendix 6.1: Commitments Register, commitments marked as related to the offshore and intertidal ornithology technical topic are:
    - C-04, C-05, C-06, C-08, C-09, C-10, C-14, C-15, C-31, C-33, C-35, C-36, C-37, C-38, C-40

Detail is not provided regarding how commitments will be secured or who is responsible for ensuring the commitments are delivered. **As such, should Scottish Ministers grant consent, we advise that all embedded commitments are secured on any consent / licence granted by Scottish Ministers.**

Monitoring

We are disappointed that little consideration has been given to monitoring requirements at this stage. We would expect to see an outline monitoring proposal, indicating how and when monitoring would be incorporated. As above, we advise that a **monitoring proposal to validate the EIA Report predictions and better understand the likelihood of impacts from artificial lighting is provided**.

Cross-border impacts

We recommend that advice is sought from Natural England in respect of English SPAs, specifically:

- Coquet Island SPA
- Farne Islands SPA
- Flamborough and Filey Coast SPA

Advice should be sought from the Department of Agriculture, Environment and Rural Affairs (DAERA) with regards to Copeland Islands SPA.

For the Irish Sea Front SPA, advice should be sought from JNCC.

Transboundary impacts

For the following SPAs, advice should be sought from the National Parks & Wildlife Service (Ireland):

- North-west Irish Sea SPA
- Seas off Wexford SPA

Report to Inform the Appropriate Assessment (RIAA)

As Marine Directorate is the competent authority, our advice is provided to assist with the Appropriate Assessment in considering the impacts on protected interests of European Sites within Scotland.

We have used the current assessment to reach an interim view, where possible, for certain sites and species. This advice is subject to results of the potential for re-apportionment and matters associated with the displacement assessment, as requested above. For in-combination impacts, our assessment is based on the qualifying species and sites in-combination for all projects and plans including Berwick Bank and Green Volt, as per our advice above.

The assessments are primarily based on the Counterfactual for Population Size (CPS) outputs from PVAs for the species where a PVA was required (based on 35 years, reflecting the application lease period). We have taken contextual information into account as detailed above when reaching conclusions, including the Counterfactual of Growth Rate (CGR) outputs.

Our review of the CPS output (and other factors) has generally enabled us to consider whether a clear conclusion can be reached (i.e. AEoSI or No AEoSI). However, in some instances this has not been the case as the range of predicted impacts is large, reflecting the uncertainty within the assessment.

As part of our assessment of in-combination effects, we consider factors such as:

- Short / long term colony trend,
- Qualifying species condition,
- Species life history,
- Proportional importance of species in Scotland and UK,
- Recent HPAI impacts, and
- Climate change sensitivity.

It should be noted for kittiwake and gannet that the 'mortality from proposal alone' value presented in our assessment below is based upon the combined displacement and collision value presented in the RIAA. We have used this value as there is evidence that shows individuals of these species show variable responses to offshore wind farms, where some are susceptible to displacement and some collision. Furthermore, for all species we have presented the mortality range associated with the low and high displacement parameters. It should be noted that while we consider the range of displacement outputs produced, due to the uncertainties associated with the displacement assessment our AEoSI conclusion is based upon the higher displacement outputs in this case.

Summary – <u>proposal alone</u> assessment

Broadly, we agree with the RIAA conclusions for the proposal alone, such that we can **provisionally advise no AEoSI**. However, this is subject to the issues highlighted above, where we require additional information and/or clarifications before providing our final advice.

Summary – <u>in-combination</u> assessment

Table A5 below has been compiled by NatureScot to provide a summary of those SPAs for which we consider there is AEoSI or where we are unable to conclude No AEoSI, in all cases these conclusions are in-combination with Berwick Bank and Green Volt. Please note we have not used a threshold to reach our conclusions, instead our assessment includes aspects of precaution as well as relevant contextual information as provided in our conclusions above. For each CPS column, high displacement mortality rate value followed by low displacement mortality rate value have been provided.

Table A5. Summary of in-combination assessment and NatureScot determination.

Site	Species	CPS	NatureScot conclusion of AEoSI in-combination
Buchan Ness to Collieston Coast SPA	Guillemot	Unable to reach a conclusion	
	Herring gull	0.973	No AEoSI
	Kittiwake	Unable to reach a conclusion	
Cape Wrath SPA	Kittiwake	0.971 - 0.978	Provisional no AEoSI
East Caithness Cliffs	Kittiwake	Unable to reach a conclusion	
Fair Isle SPA	Gannet	0.936 - 0.961	No AEoSI
Forth Islands SPA	Gannet	0.807 - 0.861	Provisional AEoSI
	Kittiwake	Unable to reach a conclusion	
	Puffin	Unable to reach a conclusion	
Fowlsheugh SPA	Kittiwake	Unable to reach a conclusion	
	Razorbill	Unable to reach a conclusion	
Hermaness, Saxa Vord and Valla Field SPA	Gannet	0.932 - 0.958	Provisional no AEoSI
North Caithness Cliffs SPA	Kittiwake	0.817 - 0.867	Provisional AEoSI
	Puffin	0.660 - 0.778	Provisional AEoSI
North Rona and Sula Sgeir	Gannet	0.984 - 0.991	No AEoSI
Noss SPA	Gannet	0.922 - 0.953	No AEoSI
St Abb's Head to Fast Castle SPA	Kittiwake	Unable to reach a conclusion	
Sule Skerry and Sule Stack SPA	Gannet	0.909 - 0.935	Unable to conclude no AEoSI
Troup, Pennan and Lion's Heads SPA	Guillemot	Unable to reach a conclusion	
	Kittiwake	Unable to reach a conclusion	
	Razorbill	Unable to reach a conclusion	
West Westray SPA	Kittiwake	0.644 - 0.740	Provisional AEoSI

Advice on a site-by-site basis for the in-combination assessment is presented below.

Buchan Ness to Collieston Coast SPA

Species	CPS (with Berwick Bank and Green Volt)	Mortality from proposal alone (birds/annum)	NatureScot conclusion of AEoSI
Guillemot	Unable to reach a conclusion		
Herring gull	0.973	0.5	No AEoSI in-combination
Kittiwake	Unable to reach a conclusion		

We conclude **no AEoSI for herring gull in-combination**, based on the combined impact from collision at Buchan Ness to Collieston Coast SPA as the CPS values are sufficiently high.

We are **unable to make a AEoSI determination for guillemot and kittiwake** at Buchan Ness to Collieston Coast SPA due to the issues surrounding the outputs from SeabORD.

Cape Wrath SPA

Species	CPS (with Berwick Bank and Green Volt) (high - low displacement mortality)	Mortality from proposal alone (birds/annum) (high - low displacement mortality)	NatureScot conclusion of AEoSI
Kittiwake	0.971 - 0.978	0.194 - 0.153	Provisional no AEoSI in-combination

Provisionally we conclude **no AEoSI for kittiwake in-combination**, based on the combined impact from collision at Cape Wrath SPA as the CPS values are sufficiently high. However, this provisional advice is subject to the issues surrounding apportioning and justification being provided around why the more recent population counts were not used in the assessment and commentary around the likely implications of this decision.

East Caithness Cliffs SPA

Species	CPS (with Berwick Bank and Green Volt) (high - low displacement mortality)	Mortality from proposal alone (birds/annum) (high - low displacement mortality)	NatureScot conclusion of AEoSI
Kittiwake	Unable to make a determination		

We are **unable to make a AEoSI determination for kittiwake** at East Caithness Cliffs SPA due to the issues surrounding the outputs from SeabORD.

Fair Isle SPA

Species	CPS (with Berwick Bank and Green Volt) (high - low displacement mortality)	Mortality from proposal alone (birds/annum) (high - low displacement mortality)	NatureScot conclusion of AEoSI
Gannet	0.936 - 0.961	0.464 - 0.249	No AEoSI in-combination

We conclude **no AEoSI for gannet in-combination**, based on the combined impact from collision at Fair Isle SPA as the CPS values are sufficiently high.

Forth Islands SPA

Species	CPS (with Berwick Bank and Green Volt) (high - low displacement mortality)	Mortality from proposal alone (birds/annum) (high - low displacement mortality)	NatureScot conclusion of AEoSI
Gannet	0.807 - 0.861	10.6 - 5.919	Provisional AEoSI in-combination
Kittiwake	Unable to reach a conclusion		
Puffin	Unable to reach a conclusion		

We **provisionally conclude AEoSI for gannet, in-combination**, based on the combined impact from collision and displacement, at Forth Islands SPA. Our conclusion takes into account:

- The very low CPS values,
- Although the species is in favourable condition, the population has been heavily impacted by HPAI.

However, this is subject to justification being provided around why the more recent population counts were not used in the assessment and commentary around the likely implications of this decision.

We are **unable to make a AEoSI determination for kittiwake and puffin** at Forth Islands SPA due to the issues surrounding the outputs from SeabORD.

Fowlsheugh SPA

Species	CPS (with Berwick Bank and Green Volt) (high - low displacement mortality)	Mortality from proposal alone (birds/annum) (high - low displacement mortality)	NatureScot conclusion of AEoSI
Kittiwake	Unable to reach a conclusion		
Razorbill	Unable to reach a conclusion		

We are **unable to make a AEoSI determination for kittiwake and razorbill** at Fowlsheugh SPA due to the issues surrounding the outputs from SeabORD.

Hermaness, Saxa Vord and Valla Field SPA

Species	CPS (with Berwick Bank and Green Volt) (high - low displacement mortality)	Mortality from proposal alone (birds/annum) (high - low displacement mortality)	NatureScot conclusion of AEoSI
Gannet	0.932 - 0.958	1.96 - 0.956	Provisional no AEoSI in-combination

We **provisionally conclude no AEoSI for gannet in-combination**, based on the combined impact from collision and displacement, at Hermaness, Saxa Vord and Valla Field SPA as the CPS values are sufficiently high. However, this is subject to justification being provided around why the more recent population counts were not used in the assessment and commentary around the likely implications of this decision.

North Caithness Cliffs SPA

Species	CPS (with Berwick Bank and Green Volt) (high - low displacement mortality)	Mortality from proposal alone (birds/annum) (high - low displacement mortality)	NatureScot conclusion of AEoSI
Kittiwake	0.817 - 0.867	0.823 - 0.625	Provisional AEoSI in-combination
Puffin	0.660 - 0.778	0.387 - 0.232	Provisional AEoSI in-combination

We **provisionally conclude AEoSI for kittiwake, in-combination**, based on the combined impact from collision and displacement, at North Caithness Cliffs SPA, taking into account:

- The low CPS values,
- Unfavourable declining condition of the species,
- A 45% decline in population between Seabird 2000 and the Seabirds Count.

We **provisionally conclude AEoSI for puffin, in-combination**, based on the combined impact from collision and displacement, at North Caithness Cliffs SPA, taking into account:

- The low CPS values,
- Unfavourable declining condition of the species,
- A 56% decline in population between Seabird 2000 and the Seabirds Count.

However, this provisional advice is subject to the issues surrounding apportioning for kittiwake and justification being provided around why the more recent population counts were not used in the assessment and commentary around the likely implications of this decision.

North Rona and Sula Sgeir SPA

Species	CPS (with Berwick Bank and Green Volt) (high - low displacement mortality)	Mortality from proposal alone (birds/annum) (high - low displacement mortality)	NatureScot conclusion of AEoSI
Gannet	0.984 - 0.991	0.249 - 0.145	No AEoSI in-combination

We conclude **no AEOSI for gannet in-combination**, based on the combined impact from collision and displacement, at North Rona and Sula Sgeir SPA as the CPS values are sufficiently high.

Noss SPA

Species	CPS (with Berwick Bank and Green Volt) (high - low displacement mortality)	Mortality from proposal alone (birds/annum) (high - low displacement mortality)	NatureScot conclusion of AEoSI
Gannet	0.922 - 0.953	0.929 - 0.481	No AEoSI in-combination

We conclude **no AEOSI for gannet in-combination**, based on the combined impact from collision and displacement, at Noss SPA, taking into account:

- The moderately low CPS values.
- Although the species is in favourable condition, the population has been heavily impacted by HPAI.

St Abb's Head to Fast Castle SPA

Species	CPS (with Berwick Bank and Green Volt) (high - low displacement mortality)	Mortality from proposal alone (birds/annum) (high - low displacement mortality)	NatureScot conclusion of AEoSI
Kittiwake	Unable to make a determination		

We are **unable to make a AEoSI determination for kittiwake** at St Abb's Head to Fast Castle SPA due to the issues surrounding the outputs from SeabORD during the displacement aspect of the assessment.

Sule Skerry and Sule Stack SPA

Species	CPS (with Berwick Bank and Green Volt) (high - low displacement mortality)	Mortality from proposal alone (birds/annum) (high - low displacement mortality)	NatureScot conclusion of AEoSI
Gannet	0.909 - 0.935	0.340 - 0.207	Unable to conclude no AEoSI in-combination

We are **unable to conclude no AEOSI for gannet in-combination**, based on the combined impact from collision and displacement, at Sule Skerry and Sule Stack SPA, taking into account:

- The moderately low CPS values.
- Although the species is in favourable condition, the population has been heavily impacted by HPAI.

Troup, Pennan and Lion's Heads SPA

Species	CPS (with Berwick Bank and Green Volt) (high - low displacement mortality)	Mortality from proposal alone (birds/annum) (high - low displacement mortality)	NatureScot conclusion of AEoSI
Guillemot	Unable to reach a conclusion		
Kittiwake	Unable to reach a conclusion		
Razorbill	Unable to reach a conclusion		

We are **unable to make a AEoSI determination for guillemot, kittiwake and razorbill** at Troup, Pennan and Lion's Heads SPA due to the issues surrounding the outputs from SeabORD.

West Westray SPA

Species	CPS (with Berwick Bank and Green Volt) (high - low displacement mortality)	Mortality from proposal alone (birds/annum) (high - low displacement mortality)	NatureScot conclusion of AEoSI
Kittiwake	0.644 - 0.740	0.499 - 0.365	Provisional AEoSI in-combination

We **provisionally conclude AEoSI for kittiwake, in-combination**, based on the combined impact from collision and displacement, at West Westray SPA, taking into account:

- The low CPS values,
- The unfavourable declining condition of the species,
- A 92% decline between Seabird 2000 and the Seabirds Count.

However, this provisional advice is subject to the issues surrounding apportioning for kittiwake.

Seabird Assemblage

For those SPAs which have a seabird assemblage feature, where we have concluded AEoSI for at least one named species of the seabird assemblage, then the same conclusion is reached for the assemblage feature. Any named qualifying species of an assemblage feature in an SPA is protected in their own right. The SPA conservation objectives are set for individual species rather than the assemblage and therefore the features should be assessed and any impacts concluded at the individual species level. This is the established position in Scotland, which differs from the approach taken in England.

For the seabird assemblage feature (and named species) we therefore **conclude AEoSI in-combination** at:

- Forth Islands SPA (gannet) – provisional advice
- North Caithness Cliffs SPA (kittiwake and puffin) – provisional advice
- West Westray SPA (kittiwake) – provisional advice

This list may be subject to change, pending the further clarification, as a number of the species are named assemblage features at the SPAs where requested updates to displacement assessments are required, as well as clarifications around apportioning and justification being provided around population counts.

Additionally, for the seabird assemblage feature (and named species) we are **unable to conclude no AEoSI in-combination** at:

- Sule Skerry and Sule Stack SPA (gannet)

Outer Firth of Forth and St Andrews Bay Complex (OFFSAB) SPA

It is noted that in Table 8.4, the Applicant lists the functionally linked breeding seabird colonies to the OFFSAB SPA, and it is stated that the Forth Islands SPA is functionally linked and no other SPAs are listed. However, this is incorrect and many more breeding colony SPAs are linked to this marine SPA. Our provisional assessment of impacts to the OFFSAB marine SPA breeding seabird qualifying species was undertaken with respect to all the functionally linked breeding colony SPAs[1]. These are listed in Table A6 below along with the relevant species and the colony SPA conclusion for AEoSI.

Table A6. Summary of NatureScot interim conclusions for OFFSAB SPA and the functionally linked sites.

Site	**Species**	**NatureScot conclusion of AEoSI**
Buchan Ness to Collieston Coast SPA	Guillemot	Unable to reach a conclusion
	Kittiwake	Unable to reach a conclusion
East Caithness Cliffs	Kittiwake	Unable to reach a conclusion

[1] Conservation and Management Advice (2022) Outer Firth of Forth and St Andrews Bay Complex Special Protection Area (SPA)

Forth Islands SPA	Gannet	Provisional AEoSI in-combination
	Kittiwake	Unable to reach a conclusion
	Puffin	Unable to reach a conclusion
Fowlsheugh SPA	Kittiwake	Unable to reach a conclusion
North Caithness Cliffs SPA	Kittiwake	Provisional AEoSI in-combination
St Abb's Head to Fast Castle SPA	Kittiwake	Unable to reach a conclusion
Troup, Pennan and Lion's Heads SPA	Kittiwake	Unable to reach a conclusion
West Westray SPA	Kittiwake	Provisional AEoSI in-combination

Marine SPAs

Section 8.2.32 of the RIAA states that there is no risk of AEoSI from direct distributional responses, i.e. vessel disturbance, at any SPAs for susceptible species. However, we disagree with this outcome as the Applicant has not fully assessed the potential implications of vessel movement on marine SPAs.

From our understanding, the Applicant has not decided which port(s) will be used during Construction, Operation and Maintenance and Decommissioning. **Without this information a full understanding of the proposed vessel movement on protected species of any marine SPAs that the vessels may transverse through cannot be understood.**

Whilst we would ordinarily have expected to see an outline plan within the Application documentation, we are aware that the location of the port(s) / assembly yard(s) /etc. has yet to be determined. Therefore, we are content, that this can be finalised through the discharge of consent conditions, as part of a vessel management plan, should consent be awarded.

Please note however, in our advice on this impact pathway for other nearby proposed wind farms, **we require further monitoring of the qualifying species to better understand species distributions, populations and locations of moulting birds to inform requirements for spatial and / or seasonal mitigation depending on selection of ports and vessel transit routes.** It would be helpful to continue to discuss this further with the Applicant as more information becomes available.

Furthermore, as indicated above, the Moray Firth SPA is not included in the EIA Report or RIAA. **Once further detail is known post-consent around the location of port(s) and potential vessel transit routes, impacts to the Moray Firth SPA and any other marine SPAs may need to be re-assessed**, with consideration given to all relevant Conservation Objectives, at that stage.

NATURESCOT ADVICE ON MUIR MHÒR OFFSHORE WIND FARM

APPENDIX B – DEROGATION

The Applicant has submitted a derogation case alongside the s36 and marine licence applications. This is provided on a without prejudice basis, and comprises:

- Derogation Case (MMH-GBE-A004-ENV-0006-601)
- Appendix A – Ornithological Compensation Measures
- Appendix B – Artificial Nesting Structures for Kittiwake Evidence and Roadmap
- Appendix C – Predator Control Evidence and Roadmap
- Appendix D – Disturbance Reduction Evidence and Roadmap
- Appendix E – Compensation Site Investigation Report
- Appendix F – Compensation Measures Environmental Impact Assessment Report
- Appendix G – No Likely Significant Effects Report

We have focused our advice on the ecological feasibility of the proposed compensation measures submitted as part of the without prejudice derogation package, acknowledging that at this point in time the Appropriate Assessment has yet to be undertaken. Our initial detailed advice on the proposed compensation measures, is provided below. We also provide some comments regarding the delivery of a cohesive, well planned and considered strategic or plan level set of compensation measures below.

Delivery of compensation

In the absence of the publication of the Sectoral Marine Plan for Offshore Wind Energy (anticipated Autumn 2025) we provide advice on project-specific compensation. We are aware there are several relevant projects and workstreams considering compensation delivery - at a plan-level and/ or regionally co-ordinated compensation - being conducted across Scottish and UK Governments. Clarity on predicted impacts for Scottish offshore wind project proposals, together with clear policy direction on plan level, strategic and/ or proposal-specific compensation requirements are currently being led by Scottish Government. We continue to engage in these discussions to ensure relevant, meaningful, high-quality measures are secured to address the biodiversity crisis, and particularly the decline of seabird populations.

We welcome and acknowledge the collaboration and desire to collectively identify potential regional compensation measures by the North East and East Ornithology Group (NEEOG). However, in the absence of a final, updated sectoral marine plan (SMP) and plan-level compensation measures and / or delivery mechanisms for coordinated compensation, individual proposal developers submitting applications are having to consider and submit, largely in isolation, individual proposal derogation cases.

Summary of NatureScot advice

The Derogation Case identifies a number of measures that could be undertaken to compensate for predicted impacts of the proposal to guillemot, kittiwake, puffin and gannet. Please note, from our appraisal in Appendix A, we advise predicted impacts to razorbill will also require compensation. The measures proposed are:

- Artificial Nesting Structures or kittiwake “hammocks”;

- Predator control – brown rat / black rat eradication and/or funding support to the Mink Control Project (MCP); and
- Disturbance reduction – targeted at non-SPA colonies and/or in collaboration with the Scottish Seabird Centre.

Our advice is focussed on ecological feasibility of compensation measures, and at present we advise there is insufficient information to have confidence that the proposed measures are likely to compensate for the predicted impacts of the proposal to seabirds.

Artificial nesting structures for kittiwake

The Applicant proposes to build Artificial Nesting Structures (ANS) or metal ledge "hammocks" into the cliffs at existing non-SPA colonies along the Scottish east coast to optimise kittiwake productivity by addressing nest structure integrity issues. At this point in time, we do not support this potential measure as nesting habitat is not generally considered to be a limiting factor for kittiwake in Scotland. There are other factors causing the decline in kittiwake populations and we recommend progressing other compensation measures which will be of wider benefit to the kittiwake populations impacted by the development.

If this measure is taken forward, we would require more detail on proposed monitoring of productivity success and further site-specific evidence suggesting nesting space is a limiting factor at these sites. Furthermore, consideration would need to be given to geodiversity / coastal habitat SSSI features, or historic environment designations, both of which would be significant barriers to deploying metal ledges in the cliff face.

Predator control

Developing a rodent eradication programme on Inchkeith (brown rat and house mouse) and Inchcolm (black rat) is proposed in the first instance. The Applicant acknowledges that Berwick Bank has previously proposed rodent eradication at Inchcolm as a contingency measure as part of their derogation case, and notes that given the outcome of the Berwick Bank application is currently uncertain, this measure could be progressed by Muir Mhòr either instead or together with Berwick Bank, depending on the Berwick Bank consenting decision. We defer to Marine Directorate regarding the ability to secure this measure given the Berwick Bank application is still under determination.

Moreover, the Applicant notes that the proposed Berwick Bank has previously considered rodent eradication at Inchkeith, although this was removed from their final derogation case. We highlight the requirement to secure landowner and land manager (if different) agreements associated with any compensation measure.

Additionally, the Applicant proposes to fund the continuation of the Scottish Invasive Species Initiative (SISI) Mink Control Project (MCP) with objectives to further intensify trapping effort and increase the geographical coverage of control areas targeting American mink - an invasive non-native species. This measure is largely preventative in nature, guarding against a potential future risk of predation by mink on kittiwake and razorbill adults and/or chicks.

Overall, we agree that these proposed measures have potential to compensate for impacts from offshore wind. To establish the effectiveness of these measures, we would require more detail on any proposed scheme, including evidence of predator impacts, which colonies and species would

benefit, frequency and duration of the measure, predicted effectiveness and how this integrates with any existing management measures, as well as any landowner agreements. There would also need to be further consideration of any indirect effects, for example on other species or habitats. This measure would also require monitoring to establish its effectiveness.

Disturbance reduction

The Applicant proposes to address human disturbance from recreational activities (clay shooting range, boat tourism, water-sports, rock climbing) at non-SPA colonies along the east coast of Scotland (Stonehaven to Aberdeen, and North and South Sutors coastline). It is proposed that this will predominantly be achieved through public outreach and education programmes.

In addition, the Applicant has proposed a partnership with the Scottish Seabird Centre to develop a tailored education and outreach programme, which would involve the education of visitor and tourism companies on and surrounding the Firth of Forth, alongside other interventions, such as engagement with fishers.

Overall, we agree that these proposed measures have potential to compensate for impacts from offshore wind. To establish the effectiveness of these measures, we would require more detail on any proposed scheme, including further quantifying any existing pressures and the scale of disturbance, which colonies and species would benefit, frequency and duration of the measure, predicted effectiveness, how success will be demonstrated through monitoring of resulting productivity increases, as well as any landowner agreements.

For all of the above, **we are unable to confirm without further site-specific information whether SSSI consent is likely to be required or granted.**

NatureScot comments on Derogation Case documentation

The remaining sections of this Appendix consist of detailed comments on each of the documents that make up the Derogation Case.

Derogation Case (MMH-GBE-A004-ENV-0006-601) and Appendix A (Ornithological Compensation Measures)

As both documents largely summarise information detailed in the remaining associated appendices to the Derogation Case, we have focused our advice on those documents as set out below. We highlight, subject to confirmation via the Appropriate Assessment, that compensation measures will be required for the following species, to compensate a predicted impact greater than identified by the Applicant:

- Guillemot
- Kittiwake
- Puffin
- Gannet
- Razorbill

Appendix B – Artificial Nesting Structures for Kittiwake Evidence and Roadmap

As advised on the 16th October 2024 (via email correspondence), we do not support this potential measure as nesting habitat is not generally considered to be a limiting factor for kittiwake in Scotland. There are other factors causing the decline in kittiwake populations and we recommend progressing other compensation measures which will be of wider benefit to the kittiwake populations impacted by the development.

Site selection

Section 4.2 briefly discusses site selection, although we note that more detail is provided in *Appendix E – Compensation Site Investigation Report*. Initial site surveys at non-SPA colonies along the east coast of Scotland (Stonehaven to Aberdeen) were conducted in July 2024 to identify key sites for this proposed compensation measure. Without additional surveys and credible site-specific evidence, we disagree that a conclusion can be reached around the amount of nesting space available limiting the productivity at these locations.

Furthermore, consideration would need to be given to geodiversity / coastal habitat SSSI features, or historic environment designations, both of which could be significant barriers to deploying metal ledges in the cliff face. For example, the potential ANS location 3 is within the Cove SSSI, and the potential ANS location 7 is within Findon Moor SSSI. Thus, SSSI consent may be required for the removal of any sediment / vegetation from the cliff face, the installation of ANS, and use of vehicles at these sites.

This would also trigger the need for an assessment of impacts on any other designated nature conservation interests for which NatureScot would be the Competent Authority. Further information will be required from the Applicant to inform this, including a detailed assessment of the potential impacts on the designated site. This should cover information on the practicality of installing and maintaining metal ledges at these sites, including mitigation measures to protect SSSI features. Consideration to bringing any vehicles across the habitats for construction, monitoring and maintenance purposes should also be given.

Landowner agreement

We reiterate the requirement to secure landowner/ land manager agreements associated with any compensation measure. Landowner agreement will also be necessary for the SSSI consent process under the Nature Conservation (Scotland) Act 2004[2].

Adaptive management

Various high-level suggestions for adaptive management are proposed, including alterations to the hammock designs, installation of additional hammocks, and attraction methods (e.g. decoys and playback). However, there is a lack of detail provided, regarding what constitutes the measure not being effective, i.e. the trigger point for adaptive management.

Predator control measures, such as protective fencing, may also be considered as adaptive management should evidence of predator presence at the sites arise. We highlight our advice

[2] https://www.nature.scot/professional-advice/protected-areas-and-species/protected-areas/national-designations/sites-special-scientific-interest-sssis-consents

above around the consideration of SSSI consents, which is also relevant for erecting and maintaining an effective predator exclusion fence.

Compensation checklist

We have reproduced Table 3-2 and provided our advice in the right-hand column. Based on the level of detail provided at this stage, we do not consider this proposed compensation measure to be appropriate.

Checklist question	**NatureScot advice**
Is this measure technically feasible?	We acknowledge that ANS have been installed at other locations globally, including metal ledges at Coquet Island by the RSPB. Thus, it is technically feasible.
Is this measure financially viable?	The Applicant is willing to finance this work and an appropriate mechanism will need to be agreed.
Is the measure legally securable?	Please note our advice above with respect to landowner agreement and consents required, which may be a significant barrier depending on location.
Is this measure ecologically effective (i.e. sufficient)?	We do not support this potential measure as nesting habitat is not generally considered to be a limiting factor for kittiwake in Scotland.
Will this measure be effective before adverse effects arise?	Compensation is expected to be in place prior to any adverse impact from the proposed development. It is noted that the potential benefits arising from this proposed compensation measure are unlikely to be realised prior to when impacts begin, as most kittiwakes do not breed until around four years old. This lagged response also poses issues when considering the trigger point for adaptive managements.

Appendix C – Predator Control Evidence and Roadmap

Site selection

Initial site surveys at non-SPA colonies along the east coast of Scotland (Stonehaven to Aberdeen, and North and South Sutors coastline) were conducted in July 2024 to identify key sites for this proposed compensation measure. Evidence of predation (predated eggs and possible puffin carcass) were recorded at Findon Ness, but no direct predation events were witnessed at any of the sites surveyed. Thus, due to a lack of data around potential predation at the sites visited, these were not considered further.

Instead, desk-based investigations into further potential non-SPA sites were undertaken, with Inchcolm and Inchkeith in the Firth of Forth considered. As noted in our advice above, the Applicant acknowledges that Berwick Bank has previously proposed rodent eradication at Inchcolm as a contingency measure as part of their derogation case. Marine Directorate will need to advise regarding the ability to secure this measure given the Berwick Bank proposed development is still under determination.

Additionally, the Applicant notes that Berwick Bank also previously considered Inchkeith, although this was removed from their final derogation case.

Mink Control Project (MCP) support

Little information is presented on the proposed MCP measure, and it is therefore insufficient for us to determine its ecological effectiveness currently. However, we note the intention to explore collaboration with the proposed Ossian Offshore Wind Farm on this measure. As such, if this measure is to be explored further, we advise consideration of our derogation advice on the Section 36 and Marine Licence applications submitted for the proposed Ossian Offshore Wind Farm.

Landowner agreement

As above, we reiterate the requirement to secure landowner and land manager (if different) agreements associated with any compensation measure. In particular, we note that Historic Environment Scotland (HES) have not been contacted (Table 4-1), despite their key role as the island manager of Inchcolm.

Monitoring

An overview of the proposed monitoring is provided in Section 3.5. This is very high level, and it would have been useful to see more detail at this stage, or an outline plan of when we might expect to see that detail. Consideration should be given to appropriate monitoring schedules and methodologies, informed by site-specific detail.

Biosecurity measures

We agree that biosecurity measures are essential to protect sites from the risk of re-incursion and welcome the commitment that biosecurity will be implemented for the duration of the operational lifetime of the proposed development, as per Paragraph 3.5.6.

Adaptive management

Paragraph 4.3.2 states that adaptive management will be pursued where there is clear evidence that the measure is not effective, which may include changes in the predator eradication / control approach. No further detail is provided regarding how the proposed measure will be adapted or what constitutes the measure not being effective, i.e. the trigger point for adaptive management.

Compensation checklist

We have reproduced Table 3-1 and provided our advice in the right-hand column. Based on the level of detail provided at this stage, we are unable to provide final advice on most of the checklist questions.

Checklist question	**NatureScot advice**
Is this measure technically feasible?	In principle, we agree that predator eradication is technically feasible. Further detail is required, including a full feasibility study, to satisfy that predator eradication at the specific sites proposed would be feasible.
Is this measure financially viable?	The Applicant is willing to finance this work and an appropriate mechanism will need to be agreed.

Is the measure legally securable?	Please note our advice above with respect to Berwick Bank and landowner agreement.
Is this measure deliverable?	In principle, we agree that predator eradication is deliverable, noting our advice above with respect to Berwick Bank and landowner agreement. Further detail is required, however, to satisfy that predator eradication at the specific sites proposed would be deliverable.
Is this measure ecologically effective (i.e. sufficient)?	We agree there is ecological merit in predator eradication at seabird colonies. Further site-specific evidence is required, however, to establish which colonies and species would benefit and the predicted effectiveness of the proposed measure.
With this measure be effective before adverse effects arise?	The Applicant intends to implement the measure before the proposed development becomes operational. A detailed breakdown of the timescales for each stage of the proposed compensation measure would have been useful to support this. However, it is noted that benefits are unlikely to be fully realised before impacts begin, as depending on the seabird species, it can take between four to six years before additional breeding adults are delivered. This lagged response also poses issues when considering the trigger point for adaptive management.

Appendix D – Disturbance Reduction Evidence and Roadmap

Site selection

Initial site surveys at non-SPA colonies along the east coast of Scotland (Stonehaven to Aberdeen, and North and South Sutors coastline) were conducted in July 2024 to identify key sites for this proposed compensation measure. Across the sites surveyed, one was found to be in direct proximity to a clay shooting range, other sites had known boat tourism / water sport routes nearby, and two sites showed evidence of rock climbing / abseiling.

However, we require additional surveys and site-specific evidence to determine the extent of any potential disturbance and to which species. The use of Strava heatmaps to determine nearby water sport routes is of particular interest and it would have been useful to include any analysis of this data to support the evidence for disturbance.

Suggested management

The proposed measure is the use of education and outreach programmes, targeted towards the general public and activity practitioners at the non-SPA colonies identified. Installing signage and employing wardens or rangers is also suggested. If signage or other structures (e.g. fencing, barriers) are proposed to be installed, consideration would need to be given to geodiversity / coastal habitat SSSI features, or historic environment designations. For instance, there is overlap with various designated sites, including Cove SSSI, Findon Ness SSSI and Rosemarkie to Shandwick

Coast SSSI. Thus, SSSI consent may be required for the installation and maintenance of any structures at these sites, including vehicular access. Consideration will also need to be given to any implications to the Scottish Outdoor Access Code (SOAC).

Partnership with Scottish Seabird Centre

Furthermore, the Applicant has proposed a partnership with the Scottish Seabird Centre (SSC) to develop a tailored education and outreach programme focused around the Firth of Forth. We welcome the proposed collaboration with the SSC and note the signed letter of understanding (Annex A) between the Applicant and the SSC. Paragraph 5.1.3 states that the Applicant is in the advanced stages of finalising this measure with the SSC and that a proposal detailing how the campaign will support seabird conservation in the Firth of Forth has been received. Whilst we are generally supportive of this measure, we would require sight of the final proposal to determine the ecological effectiveness of this measure.

Scottish Seabird Conservation Action Plan

We note the commentary provided around the consultative draft of the Scottish Seabird Conservation Action Plan and we agree that human disturbance reduction would be beneficial to seabirds, although we highlight that the exact scale of impact from human disturbance is relatively unknown.

Landowner agreement

As above, we reiterate the requirement to secure landowner agreements associated with any compensation measure. Landowner agreement will also be necessary for the SSSI consent process under the Nature Conservation (Scotland) Act 2004.

In relation to the Seal's Cove Shooting Ground, it is unclear whether the owners would be willing to cooperate and implement measures to reduce disturbance. This would be a key aspect impacting the technical and legal feasibility of this measure.

Stakeholder engagement

Table 5-1 indicates the stakeholder engagement to date related to the proposed measure. However, it appears that there has been no engagement with sports and recreation associations, despite this being a key element of the Applicant-led measure proposed at the east coast non-SPA colonies. We would expect to see evidence of initial engagement, to determine the feasibility of the proposed measure.

Monitoring

An overview of the proposed monitoring is provided in Section 4.3, including both quantitative and qualitative data collection. We note the challenges associated with quantifying the effects of human disturbance and also quantifying the resulting benefit of any proposed measure. We consider the general direction of the monitoring proposed to be appropriate but would like to see more detail.

Adaptive management

Paragraph 5.4.2 states that adaptive management will be pursued where there is clear evidence that the measure is not effective, which may include changes in the outreach and education

approach. No further detail is provided regarding how the proposed measure will be adapted or what constitutes the measure not being effective, i.e. the trigger point for adaptive management.

We note the commentary provided around Highly Pathogenic Avian Influenza (HPAI) and welcome the commitment to visitor education should a continued or further outbreak of HPAI take place over the lifetime of the measure.

Compensation checklist

We have reproduced Table 4-1 and provided our advice in the right-hand column. Based on the level of detail provided at this stage, we are unable to provide final advice on most of the checklist questions.

Checklist question	**NatureScot advice**
Is this measure technically feasible?	In principle, we agree that an education and outreach programme to reduce human disturbance is technically feasible. Further detail is required, including appropriate stakeholder engagement, to satisfy that measures at the specific sites proposed would be feasible.
Is this measure financially viable?	The Applicant is willing to finance this work and an appropriate mechanism will need to be agreed.
Is the measure legally securable?	Please note our advice above with respect to landowner agreement and consents required and any requirements to comply with the SOAC.
Is this measure deliverable?	In principle, we agree that an education and outreach programme to reduce human disturbance is deliverable. Further detail is required, including appropriate stakeholder engagement, to satisfy that measures at the specific sites proposed would be deliverable.
Is this measure ecologically effective (i.e. sufficient)?	We agree there is ecological merit in reducing human disturbance at seabird colonies. Further site-specific evidence is required, however, to establish the extent of disturbance, as well as which colonies and species would benefit and the predicted effectiveness of the proposed measure.
With this measure be effective before adverse effects arise?	The Applicant intends to implement the measure before the proposed development becomes operational. A detailed breakdown of the timescales for each stage of the proposed compensation measure would have been useful to support this.

Appendix E – Compensation Site Investigation Report

As this document largely summarises information detailed in the other associated appendices to the Derogation Case, we have focused our advice on those documents as outlined above. Further comments on Appendix E (Compensation Site Investigation Report) are provided below.

Limitations

Initial site surveys at non-SPA colonies along the east coast of Scotland (Stonehaven to Aberdeen and North and South Sutors coastline) were conducted in July 2024, with the objective to assess the feasibility of implementing proposed compensation measures at these locations. Section 4 details the limitations associated with the site visits, including the short duration and obscured view at some locations (from weather and coastline orientation).

It is useful to compare the survey findings and the latest SMP database counts. But we note the limitations around uncertainty regarding the exact locations of the SMP counts and that the most recent SMP counts were conducted via boat surveys, which are not directly comparable to the cliff-based surveys conducted during the site visits.

As such, we agree that further in-depth monitoring is required to accurately assess seabird colony populations and understand trends. Additional surveys to collect credible site-specific evidence of pressures is also required, to determine the extent of any potential impact and to which species. This information is required before we are able to provide our final advice on the ecological effectiveness of any of the proposed compensation measures at these locations.

Avian predation

Commentary around potential avian predation is briefly mentioned in Section 5.4.1. We agree that avian predator control is not a feasible compensation measure given removal of such individuals tends to be only a short-term gain and in many cases another specialist will fulfil that role. Moreover, many of these avian predator species are also SPA qualifying species and/or Birds of Conservation Concern (UK Red List).

Appendix F – Compensation Measures Environmental Impact Assessment Report

Based on the level of detail currently provided, we are unable to provide our final advice with respect to the Compensation Measures EIA Report. Further consideration may be required once more proposal specific information is known.

However, we highlight that Section 7 (Predator Control) focuses entirely on the MCP proposed measure. The rodent eradication proposed at either Inchcolm or Inchkeith are not considered in detail. Potential impacts arising from this proposed measure would need to be considered further, including incidental poisoning of non-target species.

Appendix G – No Likely Significant Effects Report

Appendix G presents a HRA Stage 1 Screening for the proposed compensation measures. There may be a requirement for further assessment of these measures with respect to HRA if activities are being carried out within / nearby European sites and could have direct or indirect effects on qualifying species other than those being targeted i.e. seabirds. This will require further consideration.

Section 3.3.3 states that SACs are screened in only where there is potential for direct overlap from the proposed activities (including potential vessel transit routes). We disagree with this approach, particularly for marine mammals.

For grey seals, we advise screening in SACs for assessment if the proposed activity or impact radius is within 20 km of the SAC. For harbour seals, we advise screening in SACs for assessment if the proposed activity or impact radius is within 50 km of the SAC. Vessel activity associated with the proposed measures are likely to be within connectivity range to various SACs designated for seals as a result.

Moreover, it is unclear why the Moray Firth SAC has been screened out, given the North and South Sutor sites will likely require additional boat-based surveys if taken forward, which directly overlap with the SAC. Furthermore, the bottlenose dolphin qualifying species are known to be wide-ranging, regularly sighted some 200 km south in the Tay Estuary and St Andrews Bay area and are also regularly seen in the Firth of Forth (Hague et al. 2020). Thus, there would be connectivity to the proposed measures along the east coast (Aberdeen to Stonehaven) and in the Firth of Forth.

Northern Lighthouse Board

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Your Ref: Muir Mhòr OWF – S36 Consent & ML Application
Our Ref: AL/OPS/ML/WIND_075_24

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17 December 2024

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 and Marine Licences Under Part 4 of the Marine (Scotland) Act 2010 and Part 4 of the Marine & Coastal Access Act 2009 to Construct and Operate the Muir Mhòr Offshore Wind Farm, Approximately 63km East of Peterhead

Thank you for your e-mail correspondence dated 6th December 2024 relating to the application submitted by **Muir Mhòr Offshore Wind Farm Ltd** for consent to construct and operate the Muir Mhòr Offshore Wind Farm, located approximately 63km East of Peterhead.

Northern Lighthouse Board note that the Muir Mhòr OWF will consist of up to 67 floating Wind Turbine Units (WTU) with an approximate export capacity of 1GW. Up to two Offshore Electrical Platforms (OEP) will be installed across the array. A maximum of three export cables from the array have a proposed landfall to the North of Peterhead.

NLB have reviewed the documentation associated with the application, with particular reference to the navigational safety elements of the application contained within Chapter 14 (Shipping & Navigation), Chapter 19 (Infrastructure & Other Users), and their associated Appendices.

NLB note the hazards identified through the Navigational Risk Assessment (NRA) process, and the associated mitigations detailed within throughout Chapter 14. NLB welcome the commitments to develop Post-Consent documentation, including a Lighting & Marking Plan (LMP), Vessel Management & Navigation Safety Plan (VMNSP) and a Development Specification & Layout Plan (DSLP).

Northern Lighthouse Board also note the inclusion of Appendix 24 (Outline VMNSP), Appendix 6 (Outline AtoN Management Plan) and Appendix 7 (Outline LMP). NLB request that provision is made within either the AtoN Management Plan or Lighting and Marking Plan for a Lighting and Marking solution that will provide AtoN coverage should a Significant Peripheral Structure (SPS), which is used to host Aids to Navigation, be removed from site for maintenance.

NLB note the inclusion within Section 3.6.38 (Floating Foundation & WTG Assembly & Marshalling) that wet storage of both component parts and integrated turbine units may be required, and the commitment to develop a post-consent Wet Storage Plan is welcomed. NLB are willing to work with both the applicant, and any Local Harbour Authority, with regard to the development of this Wet Storage Plan. NLB also acknowledge the potential for use of the 'floating to floating' installation method for the wind farm.

The establishment, alteration and discontinuation of any Aid to Navigation is subject to the Statutory Sanction of the Commissioners of Northern Lighthouses. An application form can be obtained on request from the NLB Navigation Department (navigation@nlb.org.uk).

Northern Lighthouse Board have no objection to the proposed Muir Mhòr OWF OWF, and will continue to engage with the applicant with regard to the development of post-consent navigational safety documentation.

Yours sincerely

[Redacted]

Norwegian Pelagic Association

Scottish Government

Marine Directorate

Licensing Operations Team

MD.MarineRenewables@gov.scot

25th January 2025

Muir Mhòr Offshore Wind Farm

The Norwegian Pelagic Association refers to Marine Scotland online and the application of Muir Mhòr Offshore Wind Farm.

The Norwegian Pelagic Association is a member organization for fishing boats, mostly ocean going, in Norway. Our members fish for pelagic fish in all North Atlantic, including Scottish waters.

The EIA has identified that the effect on the herring stock could be under threat. The advice on total allowable catch for North Sea herring decreased by 22 % from 2024 to 2025 and in the advice ICES states:

> *that no activities on spawning habitats should be allowed unless the effects of these activities have been assessed and shown not to be detrimental.*

It is not clear in the EIA that this is the case for the proposed development.

Spawning grounds are one of the most important areas for fishing species, and spawning success is of great importance for the future of the stock. Developments that can affect the spawning should therefore be done with great caution.

The North Sea herring is a shared stock with other coastal states, including Norway. The UK, including Scotland, has a responsibility to prevent harm to this stock.

Kind regards,

Pelagisk Forening (The Norwegian Pelagic Association) - Pelagisk Servicekontor AS

[Redacted]

Royal Society for the Protection of Birds

[Redacted]
Consenting and Licensing Casework Officer
Licensing Operations Team – Marine Directorate
Scottish Government
Victoria Quay
Edinburgh
EH6 6QQ

By email: MS.MarineRenewables@gov.scot

27th March 2025

Dear [Redacted]

Muir Mhor Offshore Wind Farm Limited – EIA, Section 36 consent and Marine Licence Applications - to construct and operate an offshore wind farm in the North Sea to, approximately 63 km east of Peterhead

Thank you for consulting RSPB Scotland on the above application to construct and operate an offshore windfarm (OWF) off the Aberdeenshire coastline, and for allowing RSPB Scotland an extension of time in which to submit our response – we are extremely grateful, though due to unforeseen circumstances in terms of staffing our response is necessarily more limited than previous responses.

RSPB Scotland recognises 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.

General Comments
We understand that the development consists of:

- Up to 67 wind turbine generators
- Offshore electrical platforms
- Associated inter-array and inter-connector cables

It is important to recognise the continued use of models for all OWF ecological assessments and that these are theoretical models that do not always correspond to reality. These models are not able to fully capture the nuances of our dynamic natural environment, the complex behaviours of seabirds or the interlinkages between the two. Therefore, models are not able to evaluate fully the possible risks windfarms pose to seabirds. This fact, combined with the sensitivities of seabird populations to e.g. small changes in adult mortality, availability of food makes them particularly vulnerable. The requirements of the Habitats

Regulations are clear on the requirement to take a precautionary approach when assessing all possible effects of a proposed development.

There are also numerous SPAs in the vicinity, supporting one or more rare, threatened, or vulnerable species and/or regularly occurring migratory species that the turbines will be within the foraging range of (See Appendix 1).

Seabirds are relatively long-lived, tend to breed later in their life cycle and have fewer young than other birds and, as a result, their populations are sensitive to even the smallest 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 key foraging areas with additional energy needing to be used to avoid and the additional flying distances to alternative foraging areas). They are also already under severe pressure. In Scotland, the number of breeding seabirds has declined by 49% since the 1980s, according to the Scottish biodiversity indicator[1]. Kittiwake and Puffin are red listed in the Birds of Conservation Concern while Northern Gannet, Razorbill and Guillemot are amber listed. In addition, in 2019 they were assessed as moving away from target to achieve Good Environmental Status[2].

Detailed Comments

RSPB Scotland welcome the Applicant's recognition of potential Adverse Effects on Site Integrity (AEoSI) of seven SPAs arising from the project in combination with other North Sea wind farms. RSPB Scotland **objects** to the Application due to these potential AEoSI, principally in relation to the following designated sites, species, and adverse impacts:

- Black-legged Kittiwake from the following SPAs:
  - Buchan Ness to Collieston Coast SPA
  - East Caithness Cliffs SPA
  - Troup, Pennan and Lion's Head SPA
  - Fowlsheugh SPA
  - Forth Islands SPA
- Razorbill from the Fowlsheugh SPA
- Northern Gannet from the Forth Islands SPA
- Atlantic Puffin from the Sule Skerry and Sule Stack SPA

However, RSPB Scotland notes that while the Applicant's Report to Inform the Appropriate Assessment (RIAA) concludes No AEoSIs there is also a 'without prejudice' case set out for potential AEoSIs should Scottish Ministers disagree. This includes potential AEoSIs for.

- Guillemot from Buchan Ness to Collieston SPA
- Atlantic Puffin from the Forth Islands SPA
- Gannet from Forth Islands SPA

PVA

We are concerned that there appear to be some problems with the PVA apportionment. Therefore, it is not possible to come to a conclusion regarding potential effects arising from the project alone nor in combination with other projects for the above species at the following SPAs:

- Buchan Ness to Collieston Coast SPA
- Farne Islands SPA
- Forth Islands SPA
- Fowlsheugh SPA
- St. Abb's Head to Fast Castle SPA

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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)

- Troup, Pennan and Lion's Head SPA

Potential Effects
For several SPAs, the potential effects for their species, of the project in-combination with other North Sea developments are significant. These impacts are additional to existing population declines and events such as Highly Pathogenic Avian Influenza (HPAI). Without exception, the impacts would add pressure to SPA species already struggling and according to the latest Seabird Population Kittiwake and Puffin Seabird Population Trends and Causes of Change 1986- 2023 (BTO November 2024) their numbers are plummeting.

Habitats Regulations and Sectoral Marine Plan
SPAs are designated due to supporting the most important bird species within the UK and therefore their protection is of paramount importance. However, the Regulations do include exceptions to this protection so that urgently needed public interest projects can proceed, despite it not being possible to ascertain for the lifetime of the project, there will not be AEoSIs alone or in-combination with other projects. These further requirements (derogations) are:

- it can be demonstrated that there are no lesser damaging alternative solutions,
- there are imperative reasons of overriding public interest (IROPI) for the project to go ahead, and
- compensation measures to maintain the coherence of the UK/National Sites Network are provided.

Whilst RSPB Scotland recognise the inclusion of the Application site within the Sectoral Marine Plan for Offshore Wind Energy, due to the potential AEoSI, Derogations are required and the Scottish Ministers must ensure the requirements of Regulations 29 and 36 of the Offshore Habitats Regulations[3] are passed before it can grant permission for the Application.

RSPB Scotland of course recognises the importance of achieving the renewable energy targets. It may be determined the development must be consented for Imperative Reasons of Overriding Public Interest, but it is vital Scottish Ministers undertake the most rigorous assessment of the suitability and efficacy of the compensation measures proposed, and requires rigorous application of any agreed compensation in the interests of ensuring the overall coherence of the UK Sites Network (Natura 2000 Network). Nothing less would be acceptable.

The Applicant's proposed compensation measures as outlined in the submitted Compensation Plan and Derogation Case submitted with the Application, they comprise:

i. Artificial nesting structures for Kittiwake;
ii. Disturbance reduction measures; and
iii. Predator eradication measures for Guillemot and Puffin

Commentary on and analysis of these proposed compensation measures is attached to this letter as a Appendix 2. In summary, although RSPB Scotland notes the helpful details contained within the Compensation Plan Derogation Case documents, we do not consider the lack of nesting structures is an issue on the Aberdeenshire Coast.

Several measures are proposed that would require the consents of other landowners in terms of access and any physical works. While the Applicant is confident these measures can be secured, we note consents and permissions are yet to be gained. There should at least at this stage be evidence of any consents or permissions being securable.

However, we have concerns about how these measures will effectively ensure disturbance is reduced and currently the lack of information re implementation and future monitoring requirements. Again, we are keen to work with the Applicant to ensure the Compensation Implementation Plan includes all such requirements.

[3] https://www.legislation.gov.uk/uksi/2017/1013/contents

Overall, we welcome the opportunity to engage in ongoing dialogue with the Applicant, the Marine Directorate and NatureScot to help shape and improve the proposed compensation measures and ensure they are deliverable and effective (ecologically, financially and legally), thus ensuring the coherence if the UK/National Sites Network.

Summary

RSPB Scotland's position is that we **object** to the Application due to being unable to reach a clear conclusion on the scale of the potential cumulative effects, given that there are likely to be significant effects on a number of SPA species. This is in part due to issues with PVA apportionment and additional information being required before RSPB Scotland can reach clear conclusions on possibly adverse effects.

Should you require any further information or clarification, please do not hesitate to get in contact.

Yours sincerely

[Redacted]

[Redacted]
Senior Conservation Planner, RSPB Scotland

Appendix 1
Muir Mhor Offshore Windfarm Application
Detailed Response by the Royal Society for the Protection of Birds

Introduction

1. This appendix sets out the steps for the habitat regulations with the legal steps that must be taken, together with the wider legal context and the policy landscape for offshore wind development. This is followed by a summary of the most relevant seabird colonies and their current status.

Offshore ornithology assessment

2. RSPB Scotland recognise that the Applicant invested a great amount of time and resource into the ornithological re-assessment process and wish to formally express that we welcome and appreciate this work.

3. We consider the approach advised by NatureScot and detailed in their online guidance to be the best reflection of the likely impact of the proposed OWF development.

4. As set out in Searle et al (2023a)1, 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 inherently dynamic marine environment.

5. 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.

6. 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.

7. Not recognising these uncertainties risks poorly informed decisions being made. Furthermore, an underestimation of impacts will have repercussions when consenting later offshore wind development. 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.

The Habitats Regulations

8. The Habitats Regulations seek to conserve particular habitats and species across the UK. The overall aim of these Regulations is to ensure the long-term survival of viable populations of the UK's most valuable and threatened species and habitats, throughout their natural range and to maintain and promote biodiversity.

9. These Regulations relevant to this application are:

   9.1. *The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) ("the 1994 Regulations")* - applies on land in Scotland, and in Scottish inshore waters (the area of sea adjacent to Scotland from 0 to 12 nautical miles);

   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

   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).

10. These are referred to as "the Habitats Regulations" in this submission.

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.

12. Although the UK has withdrawn from the EU, the aims and objectives (as set out in the Habitats and Birds Directives recitals/preambles) remains relevant and important as discussed below. SPAs are protected in Scotland and the rest of the UK, and the standard of protection and requirements has not changed.

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 "Natura 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". In addition, references in the Habitats Regulations to the "coherence of Natura 2000" must now be read as references to the coherence of the UK/National site network.

14. Using *the Conservation of Habitats and Species Regulations 2017* (since all Habitats Regulations have identical requirements), the 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:

- 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 –
- 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)).
- 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)).
- 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)).

- 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)).

- 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)).

- 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).

15. 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, having regard to the requirements of Article 2 of the Birds Directive.[7] 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

16. 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*.

17. 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 (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).

18. 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. 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".*

19. 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 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.

20. 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

21. 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.

22. 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

23. Also of relevance to achieving sustainable development in our seas is the Marine Strategy Framework Directive[13]. 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.

24. 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.

25. 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.

26. 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. The reduced availability of small fish is largely responsible for these declines and impacts on breeding success.

Section summary

27. 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.

Policy Position

28. In accordance with the requirements of the Marine (Scotland) Act 2010 when considering an application and making a recommendation to Ministers, MD-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.

29. Scotland's National Marine Plan[2] (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).

30. 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.

31. 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, enhance the health of the marine area. It also encourages a strategic approach to mitigation of potential and cumulative impacts, stating that these form an integral part of marine planning and decision making.

32. 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.

33. 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), recognises the potential impacts on biodiversity arising from the major expansion in offshore wind. It contains a commitment 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 tackling the climate and nature crisis.

34. 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. Although in early stages of development, RSPB Scotland understands that consideration is being given as to how National Marine Plan 2 can follow the approach in NPF4.

Ornithological interest of the Application site

35. 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.

36. 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).

37. 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, food preferences and flight behaviour), 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

38. The **key species of** interest **in relation to the application are** Black-legged Kittiwake (*Rissa tridactyla*), Northern Gannet (*Morus bassanus*), Common Guillemot (*Uria aalge*), Atlantic Puffin (*Fratercula artica*) Manx Shearwater (*Puffinus puffinus*), European Storm-petrel (*Hydrobates pelagicus*) and Leach's Storm-petrel (*Hydrobates leucorhous*).

39. A summary of their population status within the Britain, Isle of Man and Channel Islands is provided in Table 1 below.

Species	% World Population	UK Colony Trends 1986 to 2021
Black-legged Kittiwake	5.3	Declining
Northern Gannet	59.1	Mostly increasing but a few declining colonies *(N.B. Gannets were badly impacted by HPAI in 2021-22)*
Guillemot	6.2	Some colonies increasing but many declining
Atlantic Puffin	3.3-3.9	Declining
Manx Shearwater	81.0	Increasing
European Storm-petrel	6.8	Increasing
Leach's Storm-petrel	0.1	Declining

Table 1

Northern Gannet

40. 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 metres but also feed from the surface on small shoaling fish such as sandeel.

41. 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).

42. 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 breeding failure was reported which is likely to vastly impact their future population numbers and the robustness of those populations to additional mortality.

43. They are amber listed in the Birds of Conservation Concern.

44. Northern Gannet have been assessed as having a high vulnerability to collisions with rotating turbine blades (Furness *et al.,* 2013, Wade *et al.,* 2016), 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.

45. 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.

46. 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

47. 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.

48. 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.

Common Guillemot

49. 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. 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.

50. 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.

51. While details are still emerging, the 2024 breeding season for Guillemot appears to be extremely poor, with large number of nest sites vacant, birds present but not laying eggs and high degree of breeding asynchronicity. The causes of this are likely to be multifactorial, and may include HPAI, high water temperatures and resultant poor body conditions. The long term, population scale consequences are unclear, but may be severe. As a result, an extremely high level of precaution should be applied in considering the impacts arising from any offshore development on this species.

52. They are amber listed in the Birds of Conservation Concern.

Puffin

53. 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 but during the breeding season, they typically feed on shoaling fish such as sandeel, sprat and herring which they catch by underwater pursuit.

54. They are vulnerable to displacement which can lead to a loss of feeding grounds and excess energy expenditure as they take less direct routes to reach alternative prey sources.

55. Puffin are red listed in the Birds of Conservation Concern and have been assessed by the IUCN as vulnerable to global extinction.

Manx Shearwater

56. This medium-sized sooty black and white seabird is a skilful navigator of the open ocean, but rarely seen on land. Manx shearwaters are long-lived birds that typically glide on stiff wings low over the sea surface. They are nocturnal at their breeding colonies, which are often located in steep and inaccessible terrain at a few dozen localities, mostly located on our western seaboard.

57. Outside of the breeding season, these migratory birds winter in the South Atlantic, predominantly off Brazil and Argentina.

58. The birds are amber listed as a UK bird of conservation concern.

European Storm-petrel

59. This small petrel, not much larger than a House Martin and very similar in appearance, is extremely pelagic, spending most of its life at sea.

60. The Storm Petrel only comes to land during the summer months, making its breeding attempts on offshore islands and a few isolated headlands. Although it has an estimated breeding population in the UK of around 30,000 pairs, this is an extremely difficult species to see during the breeding season, only coming to land during the hours of darkness often staying at sea on bright moonlit nights.

61. Several Storm Petrel breeding colonies have been the subject of detailed study, with ringing data demonstrating that this is a long-lived bird, with some individuals living for over 30 years.

62. This is the most marine of our breeding birds and a difficult species to see, visiting its underground nests at night and spending the rest of the time at sea.

63. The birds are amber listed as a UK bird of conservation concern.

Leach's storm-petrel

64. Leach's Petrel has a more restricted breeding distribution within Britain & Ireland than the more familiar Storm Petrel, its colonies all located within 70 km of the Atlantic continental shelf. While significant numbers breed at colonies on remote islands far off the coasts of Scotland and Ireland, our population is small compared to those off North America.

65. As with other burrow-nesting seabirds, the species faces a threat from mammalian predators inadvertently introduced to islands. Leach's Petrels may also be taken by avian predators, which is one reason for their nocturnal habits at breeding sites.

66. The birds are red listed as a bird of UK conservation concern.

Proximity of seabird colonies

67. The application array location is close to several SPAs with qualifying features within foraging range of the application array area. This includes the East Caithness Cliffs SPA, North Caithness Cliffs SPA, 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, Flannan Isles, Foula, North Rona and Sgula

Sgeir, St Kilda, Sule, Skerry and Sule Stack, Auskerry, Mousa, Priest Islands (Summer Isles), Seas of St Kilda, St Kilda, Treshnish Isles, Copeland Islands, Aberdaron Coast and Bardsey Island, Irish Sea Front, Rum, Skomer, Skolkholm and seas off Pembrokeshire.

68. 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.

Forth Islands SPA

69. The Forth Islands SPA 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.

70. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

- Migratory species including:
  - **Northern Gannet**, representing 8.2% of world's biogeographical population and 13.6% of the Great Britain population); and
  - **Atlantic Puffin,** (representing 1.5% of the total F.a.grabae biogeographic population and 3.1% of the Great Britain population).
- In excess of 20,000 individual seabirds during the breeding season including, in addition to Northern Gannet and Atlantic Puffin:
  - **Razorbill** representing 1.4% of the Great Britain population;
  - **Common Guillemot** representing 2.2% of the Great Britain population; and
  - **Black-legged Kittiwake** representing 1.7% of the Great Britain population.

71. The conservation objectives for the Forth Islands SPA are:

"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

To ensure for the qualifying species that the following are maintained in the long term:

- *Population of the species as a viable component of the site*
- *Distribution of the species within site*
- *Distribution and extent of habitats supporting the species*
- *Structure, function and supporting processes of habitats supporting the species*
- *No significant disturbance of the species"*

Fowlsheugh SPA

72. Fowlsheugh SPA is a stretch 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.

73. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

- Migratory species including:
  - **Common Guillemot** representing 5% of the Great Britain population; and

- **Black-legged Kittiwake** representing 7.5% of the Great Britain population.

- In excess of 20,000 individual seabirds during the breeding season including**:**
  - **Razorbill** representing 3.9% of the Great Britain population.

74. The conservation objectives for the Fowlsheugh SPA are:

"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

To ensure for the qualifying species that the following are maintained in the long term:

- *Population of the species as a viable component of the site*
- *Distribution of the species within site*
- *Distribution and extent of habitats supporting the species*
- *Structure, function and supporting processes of habitats supporting the species*
- *No significant disturbance of the species"*

St Abb's Head to Fast Castle SPA

75. St Abb's Head to Fast Castle SPA 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.

76. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

- In excess of 20,000 individual seabirds during the breeding season including:
  - **Razorbill** representing 1% of the Great Britain population;
  - **Common Guillemot** representing 3% of the Great Britain population; and
  - **Black-legged Kittiwake** representing 4% of the Great Britain population.

77. The conservation objectives for the St Abb's Head to Fast Castle SPA are:

"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

To ensure for the qualifying species that the following are maintained in the long term:

- *Population of the species as a viable component of the site*
- *Distribution of the species within site*
- *Distribution and extent of habitats supporting the species*
- *Structure, function and supporting processes of habitats supporting the species*
- *No significant disturbance of the species"*

East Caithness Cliffs

78. The East Caithness Cliffs SPA includes most of the sea-cliff areas between Wick and Helmsdale on the north-east coat of the Scottish mainland and includes an approximate 2km seaward extension. It was designated in 1996 and the marine extension in 2009.

79. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

- In excess of 20,000 individual seabirds during the breeding season including:
  - **Razorbill** representing 2% of the Great Britain population;

- **Common Guillemot** representing 3% of the Great Britain population; and
- **Black-legged Kittiwake** representing 1% of the Great Britain population.

80. The conservation objectives for the East Caithness Cliffs SPA are:

"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

To ensure for the qualifying species that the following are maintained in the long term:

• Population of the species as a viable component of the site
• Distribution of the species within site
• Distribution and extent of habitats supporting the species
• Structure, function and supporting processes of habitats supporting the species
• No significant disturbance of the species"

North Caithness Cliffs

81. The North Caithness Cliffs SPA includes sea-cliffs and islands at the north coast of the Scottish mainland. It includes a seaward extension that extends approximately 2km into the marine environment to include the seabed, water column and surface. It was designated in 1996 and the marine extension in 2009.

82. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

- In excess of 20,000 individual seabirds during the breeding season including:
  - **Razorbill** representing 3% of the Great Britain population;
  - **Common Guillemot** representing 4% of the Great Britain population; and
  - **Black-legged Kittiwake** representing 3% of the Great Britain population.

83. The conservation objectives for the North Caithness Cliffs SPA are:

"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

To ensure for the qualifying species that the following are maintained in the long term:

• Population of the species as a viable component of the site
• Distribution of the species within site
• Distribution and extent of habitats supporting the species
• Structure, function and supporting processes of habitats supporting the species
• No significant disturbance of the species"

Troup, Pennan and Lion's Heads

84. The Troup, Pennan and Lion's Heads SPA is a 9km stretch of sea cliffs along the Aberdeenshire coast in Scotland. It includes a seaward extension that extends approximately 2km into the marine environment to include the seabed, water column and surface. It was designated in 1997 and the marine extension in 2009.

85. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

- In excess of 20,000 individual seabirds during the breeding season including:

- **Black-legged Kittiwake** representing 6% of the Great Britain population;
- **Common Guillemot** representing 4% of the Great Britain population.

86. The conservation objectives for the Troup, Pennan and Lion's Heads SPA are:

"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

To ensure for the qualifying species that the following are maintained in the long term:

• Population of the species as a viable component of the site
• Distribution of the species within site
• Distribution and extent of habitats supporting the species
• Structure, function and supporting processes of habitats supporting the species
• No significant disturbance of the species"

Buchan Ness to Collieston Coast

87. The Buchan Ness to Collieston Coast SPA is a stretch of south-east facing cliff in Aberdeenshire, Scotland. It includes a seaward extension that extends approximately 2km into the marine environment to include the seabed, water column and surface. It was designated in 1998 and the marine extension in 2009.

88. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

- In excess of 20,000 individual seabirds during the breeding season including:
  - **Common Guillemot** representing 1% of the Great Britain population; and
  - **Black-legged Kittiwake** representing 6% of the Great Britain population.

89. The conservation objectives for the Buchan Ness to Collieston Coast SPA are:

"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

To ensure for the qualifying species that the following are maintained in the long term:

• Population of the species as a viable component of the site
• Distribution of the species within site
• Distribution and extent of habitats supporting the species
• Structure, function and supporting processes of habitats supporting the species
• No significant disturbance of the species"

Farne Islands

90. The Farne Islands SPA is a group of low-lying islands 2-6km off the coast of Northumberland in north-east England. It includes a seaward extension that extends approximately 2km into the marine environment to include the seabed, water column and surface. It was designated in 1996 and the marine extension in 2009.

91. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

- In excess of 20,000 individual seabirds during the breeding season including:
  - **Common Guillemot** representing 2% of the biogeographic population; and

- Seabird assemblage including Black-legged Kittiwake.

92. The conservation objectives for the North Caithness Cliffs SPA are:

"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

To ensure for the qualifying species that the following are maintained in the long term:

- *Population of the species as a viable component of the site*
- *Distribution of the species within site*
- *Distribution and extent of habitats supporting the species*
- *Structure, function and supporting processes of habitats supporting the species*
- *No significant disturbance of the species"*

Flamborough and Filey Coast SPA

93. The Flamborough and Filey Coast SPA is a stretch of cliffs running along the Yorkshire coast. It includes a seaward extension that extends approximately 2km into the marine environment to include the seabed, water column and surface. The Flamborough Head and Bempton Cliffs SPA was originally designated in 1993 for its internationally important colony of Kittiwakes. In 2016, the protected area was extended and renamed as the Flamborough and Filey Coast SPA. This extension provided specific protection to another three species, the overall seabird assemblage, and the terrestrial cliff environment of Filey Brigg. The revised SPA also protects the inshore waters around the seabird breeding cliffs, from mean low water to 2km offshore.

94. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

- In excess of 20,000 individual breeding seabirds and more than 1% of the biogeographical population of four regularly occurring migratory species;
  - **Black-legged Kittiwake** (2% North Atlantic);
  - **Northern Gannet** (2.6% North Atlantic);
  - **Common Guillemot** (15.6% North Atlantic);
  - **Razorbill** (2.3% North Atlantic); and
  - **Seabird assemblage** including over 2,000 individual **Northern Fulmar**

95. The conservation objectives for the Flamborough and Filey Coast SPA are:

"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

To ensure for the qualifying species that the following are maintained in the long term:

- *Population of the species as a viable component of the site*
- *Distribution of the species within site*
- *Distribution and extent of habitats supporting the species*
- *Structure, function and supporting processes of habitats supporting the species*
- *No significant disturbance of the species"*

Hoy SPA

96. Hoy is a mountainous island at the south-western end of the Orkney archipelago. Hoy SPA covers the northern and western two-thirds of Hoy island, which is formed of Old Red Sandstone and contains Orkney's highest hills, and adjacent coastal waters. ed Sandstone and contains Orkney's highest hills, and adjacent coastal waters. The SPA supports an extremely diverse mixture of mire, heath and alpine vegetation and Britain's most northerly native woodland. These upland areas and the high sea cliffs at the coast support an important assemblage of moorland breeding birds and breeding seabirds.

97. It was designated in December 2000 with a marine extension on 25 September 2009 and qualifies under Article 4(2) of the Birds Directive by regularly supporting 120,000 seabirds including nationally important populations of the following species:

- **Atlantic puffin** (3,500 pairs, 0.7% of the GB population);
- **Black-Legged Kittiwake** (3,000 pairs, 0.6% of the GB population);
- **Arctic Skua** (59 pairs, 2% of the GB population);
- **Northern Fulmar** (35,000 pairs, 6% of the GB population);
- **Great Black-Backed Gull** (570 pairs, 3% of the GB population);
- **Common Guillemot** (13,400 pairs, 2% of the GB population).

98. The conservation objectives for Hoy SPA are:

"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

To ensure for the qualifying species that the following are maintained in the long term:

- *Population of the species as a viable component of the site*
- *Distribution of the species within site*
- *Distribution and extent of habitats supporting the species*
- *Structure, function and supporting processes of habitats supporting the species*
- *No significant disturbance of the species"*

Rousay

99. Rousay is an island off the north-east of Orkney. The SPA consists of sea cliffs and areas of maritime heath and grassland in the northwest and northeast of the island.

100. It was designated in February 2000 with a marine extension in 2009 and qualifies under article 4(1) and 4(2) of the Birds Directive by regularly supporting 30,000 seabirds including nationally important populations of the following species:

- **Arctic Tern** (790 pairs, 2% of the GB population),
- **Arctic Skua** (130 pairs; 4% of the GB population),
- **Black-legged Kittiwake** (4,900 pairs; 1% of the GB population),
- **Common Guillemot** (10,600 individuals, 1% of the GB population),
- **Northern Fulmar** (1,240 pairs, 0.2% of GB population).

101. The conservation objectives for Rousay SPA are:

"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

To ensure for the qualifying species that the following are maintained in the long term:

- *Population of the species as a viable component of the site*
- *Distribution of the species within site*
- *Distribution and extent of habitats supporting the species*
- *Structure, function and supporting processes of habitats supporting the species*
- *No significant disturbance of the species"*

Proximity of Marine Protected Areas

Outer Firth of Forth and St Andrews Bay Complex SPA

102. The Outer Firth of Forth and St Andrews Bay Complex SPA 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.

103. It was designated in 2020 and qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

- Migratory species including:
  - **Northern Gannet** (*Morus bassanus*), representing 1.4% of biogeographical population and 2.7% of the Great Britain population.
- In excess of 20,000 individual seabirds during the breeding season including:
  - **Atlantic Puffin** (*Fratercula arctica*) representing 5.3% of the Great Britain population,
  - **Black-legged Kittiwake** (*Rissa tridactyla*) representing 1.6% of the Great Britain population and;
  - More than 2,000 individual **Common Guillemots** (*Uria aalge*).
- 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*).

104. The draft conservation objectives for the Outer Firth of Forth and St Andrews Bay Complex SPA are:

"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.

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:

- *The populations of qualifying features are viable components of the site.*
- *The distributions of the qualifying features throughout the site are maintained by avoiding significant disturbance of the species.*

- *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."*

105. 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.

Appendix 2
RSPB Scotland commentary on the Applicant's proposed compensation measures

1. The fundamental issues with the Applicant's assessment, along with the presentation of the outputs of the modelling of population scale impacts, in our view mean the appropriate assessment is inadequate, and therefore insufficient for the robust consideration required to enable a proper understanding of all potential adverse effects of the Application. Whilst we appreciate the Applicant may provide more information (and we reserve the right to review our comments and concerns in light of it) unless the Applicant resolves these fundamental issues, in our view the assessment currently provided is not fit for purpose and therefore the full extent of the compensation measures required cannot be calculated.

RSPB Scotland's approach to evaluating compensation measures

Introduction

2. In short - it is vital that details and evidence are provided to enable confidence ecologically, financially and legally, in the compensation proposals and such information must be available for review by all Interested parties. This section sets out RSPB Scotland's approach to evaluating compensation measures. It includes our general approach to assessing compensation proposals and the level of detail we consider is required to evaluate compensation proposals as part of the Application's determination, before drawing out some general issues raised by the Applicant's proposals. We have set it out under the following headings:

   - RSPB Scotland's approach to assessing compensation proposals;
   - What level of detail is required on proposed compensation measures?
   - Generic issues raised by the Applicant's compensation proposals:
     - Relevance of measures to target species
     - Scale of compensation
     - Lead-in times for compensation
     - Lifetime of compensation and how certain measures would be maintained over time
     - Monitoring effectiveness of disturbance reduction measures
     - Are more strategic options available (or will be available)

RSPB Scotland's approach to assessing compensation proposals

3. Set out in Table 1 below is the key criteria and requirements from the EC guidance on compensatory measures, along with additional commentary based on RSPB Scotland's experience of the principles that should be applied when assessing compensatory measures.

EC criteria	EC guidance summary (emphasis added)	RSPB Scotland additional commentary
Targeted	Measures should be the **most appropriate to the impact predicted** and **focused on objectives and targets addressing the Natura 2000 elements affected**. Must **refer to structural and functional aspects of site integrity and habitats/species affected**. **Must consist of ecological measures**: payments to individuals/funds are not appropriate.	Clear objectives and success criteria must be established for the compensation measures. Must address the ecological functions and processes required by impacted species/habitat. Requires shared understanding and agreement on what the impacts are i.e. need to agree nature, magnitude including that they will continue for as long as the project's impacts. This includes the time likely to be required for the SPAs to recover from those impacts in the case of proposals that are in place for a specified time period. This is in order to define objectives for compensation measures and to set out the success criteria to determine whether those objectives have been/are being achieved.
Effective	**Based on best scientific knowledge available alongside specific investigations for the location where the measures will be implemented**. Must be **feasible and operational in reinstating the conditions needed to ensure the overall coherence** of the Natura 2000 network. **Measures where no reasonable guarantee of success should not be considered**. The likely success of the compensation scheme should influence final approval of the plan or project in line with the prevention principle. The **most effective option, with the greatest chance of success, must be chosen**. **Detailed monitoring required** to ensure long-term effectiveness with remediation provisions if shown to be less effective.	Scientific evaluation of proposed measures must be carried out before consent is granted to avoid agreeing to measures that is/are not effective or technically feasible. This should include appropriate baseline survey and assessment. Compensation must address the impacted SPAs features to ensure overall coherence of the network for that feature is maintained. Substitution is not acceptable. Must be clearly defined timescales for delivery and measuring success (See success criteria under Targeted above). Monitoring must directly relate to the target species and the relevant ecological functions and processes. The compensation measures should be provided in perpetuity in line with obligations to ensure the overall coherence of the UK Site Network is maintained. Where it is not possible to devise compensatory measures to offset the adverse effects on site integrity, the project should not proceed.

EC criteria	EC guidance summary (emphasis added)	RSPB Scotland additional commentary
Technical feasibility	**Design must follow scientific criteria and evaluation** in line with best scientific knowledge and take into account the specific requirements of the ecological features to be reinstated.	See **Effective** above.
Extent	Extent required **directly related to**: • the **quantitative and qualitative aspects inherent to the elements of integrity likely to be impaired** • **estimated effectiveness of the measure(s)** Therefore, ratios best set on a case-by-case basis. Ratios should generally be well above 1:1. Ratios of 1:1 or below only considered when shown measures will be fully effective in reinstating structure and functionality in a short period of time.	Based on an assessment of the necessary ecological requirements to restore species' populations and the related habitat structure and functions identified in the compensation objectives. Determining the minimum appropriate quantity will require an understanding of the quality of the compensation measures and how effective they will be in reinstating the required structures and functions. Any identified uncertainty in success should be factored in to increased ratios. Ratios need to be used where they make ecological sense and will help secure a successful outcome by providing more of something. Simply multiplying capacity to address uncertainty risks giving a false level of confidence. If there is no reasonable guarantee of success that measure should not be considered (see **Effective** under EC criteria).
Location	**Located in areas where they will be most effective** in maintaining overall coherence of the Natura 2000 network. Pre-conditions to be met include: • **must be within same range/ migration route/wintering areas for bird species** and **provide functions comparable those justifying selection of original site esp. geographical distribution**; • **must have/be able to develop the ecological structure and functions required by the relevant species** (or habitat) • **must not jeopardise integrity of any other Natura 2000 site**.	While the preference is for compensation measures as geographically close to the location of the damage, it is important to consider whether or not the compensation measures will be subject to pressures impacting their efficacy in that location e.g. prey availability, disturbance, and/or other impacts from the same or similar developments such as collision risk or displacement due to offshore wind farms. Therefore, compensation measures should be located so as to maximise proximity while minimising external pressures that may reduce likelihood of success. Compensation measures proposed to benefit SPA features must not result in damage to the integrity of any other SPA, SAC or Ramsar site and their features.

EC criteria	EC guidance summary (emphasis added)	RSPB Scotland additional commentary
	Spatial search hierarchy starting as close as possible to the impacted Natura 2000 site and working out from there.	
Timing	Case by case approach but **must provide continuity in the ecological processes essential to maintain the structure and functions that contribute to the Natura 2000 network coherence**. Requires **tight co-ordination between implementation of the plan or project and the compensation measures**. Factors to consider include: • **no irreversible damage to the site before compensation in place** • **compensation operational at the time damage occurs**. If not possible, over-compensation required • **time lags only admissible if will not compromise objective of "no net loss" to coherence of Natura 2000 network**; • May be possible to scale down in time depending on whether the negative effects are expected to arise in short, medium or long term. **All technical, legal or financial provisions must be completed before plan or project implementation starts** to prevent unforeseen delays that compromise effective compensation measures.	Compensation measures should be fully functional before any damage occurs to ensure the overall coherence of the UK Site Network is protected. This requires careful alignment of the timelines for implementing the plan or project and the compensation measures. Suggested time lags in delivering fully functional compensation will need to be carefully considered and can only be accepted where this will not compromise the continuity of essential ecological processes, Any effect of delay should be factored into the design and additional compensation measures provided (see also **Extent** above).
Long-term implementation	**Legal and financial security required for long-term implementation** and **for protection, monitoring and maintenance of sites to be secured before impacts occur.**	Legal rights to secure and implement the compensation measures must be in place prior to consent being granted. And robust financial guarantees are required to fund implementation, monitoring and any necessary remediation measures.

Table 1: Criteria for designing compensatory measures

RSPB Scotland's response to specific proposals

Developer proposed measures

4. The application is accompanied by compensation proposals based upon predicted impacts upon:

    - Kittiwake
    - Guillemot
    - Razorbill; and
    - Puffin

5. The package of compensation measures for these species are as follows:

    - Artificial Nesting Structures (ANS) for Kittiwake
    - Predator control for Kittiwake, Guillemot, Razorbill and Puffin; and
    - Disturbance reduction measures for all targeted species

Artificial nesting structures

6. The proposed compensation measure is to build artificial nesting structures in the form of artificial ledges or hammocks into the cliffs of existing colonies at 7 potential sites. The locations would be the following non-SPA colonies- Burned banks, Cove Bay, Cove Bay to Hare Ness, Hare Ness to Seals, Cove, Seals Cove to Findon Ness. A conservative estimate of the benefits of this measure is an additional 407 fledglings per annum.

Predator control for Kittiwake, Guillemot, Razorbill and Puffin

7. A potential predator control program is being explored at non-SPA islands Inchkeith and Incholme in the Firth of Forth that have been identified as hosting populations of mammalian predators. The Berwick Bank offshore wind farm had proposed the implementation of mammalian control at Incholme for their application. Should the Berwick Bank offshore wind farm be determined positively, including these measures in their package, the developer would aim to engage with the Berwick Bank developers and explore potential collaboration.

Disturbance reduction measures for all affected species

8. Where the colony at Shields Cove to Findon Ness is concerned, there is potentially a negative impact on Kittiwake from a nearby clay shooting range. Gunshot noises may affect the condition of the birds, as repeated escape behaviour can have a negative effect upon the fitness of breeding Kittiwake and auks. Disturbance to the colonies from tour boats has also been identified as a potential source of disturbance that could be managed through educational outreach.

9. While difficult to quantify, the applicant highlights there is a significant amount of evidence to support the use of environmental education and conservation education. Simple educational measures can provide signposting, and the applicant considers such to have proven effective at reducing human disturbance. The developer is discussing a collaboration with the Scottish Seabird Centre on the implementation of outreach activities, between the two parties. These measures are in line with the upcoming Scottish Seabird Strategy and which the applicant points out has been supported by RSPB Scotland as a compensatory measure.

RSPB comments on proposed measures

10. Firstly, we note that the compensation proposal indicate some level of agreement with the RSPB Scotland. However, we would clearly state that the RSPB, while recognising that the measures are relevant in terms of approaches to compensation on a project level, has not agreed to these particular measures, or their timings and locations.

11. Clearly the proposed measures at this stage are 'in principle' options. We would not want to see a situation where consent is granted without a detailed and realistic assessment and plan setting how the measures can be implemented. We welcome the establishment of an expert topic group and should consent be granted a steering group for the measures. RSPB Scotland would welcome involvement in these groups along with Nature Scot and MD Renewables Division to devise detailed proposals, though we are mindful in terms of capacity that similar requests are being/will be made by multiple developers within a similar time frame.

12. There is no sound methodology and research basis at this time that would allow us to conclude that the measures are appropriate in terms of compensation or practicable and we would question whether consent can be granted for the project on an IROPI basis without further, more detailed assessment of these measures on specific, geographic sites. If this is dealt with by granting consent on a conditional basis, we do not consider at this stage that there could be any real confidence that such conditions could be fulfilled.

Predator control

13. While we are supportive in principle of mink control measures, RSPB Scotland require further details to determine whether it is acceptable to be used as a compensation measure for seabirds. Results from a number of studies have shown varying effects of mink control on seabirds. In the Scottish West Coast, terns have shown higher breeding success at controlled sites, compared to uncontrolled sites (Ratcliffe et al., 2006; Ratcliffe et al., 2008). In the Archipelago National Park, Finland, Mink have been controlled since the 1990s. The effect it has had on biodiversity has been substantial, with many seabirds, land birds, and water birds having benefited from it (Nordstrom et al., 2003; Banks et al., 2008). Of the seabirds at this site, Great Black-backed Gulls have not shown signs of change since the control, Razorbills have re-colonised the sites, and Arctic Skuas, Arctic Terns and Common Gulls have increased their breeding success.

14. While we acknowledge there is good evidence of the removal of mink increasing local populations of razorbill, we also agree with the applicant that "Examples of mink predation of razorbill are limited by both the difficulty in accessing or even observing razorbill nesting locations". We also request that further information of the types of colonies where mink predation has been a problem is required such as the nature of the habitat in which Razorbill are nesting. For example, Nordström and Korpimäki, 2004 describe mink as having a negative effect on Razorbill population on small Baltic islands and mink removal having positive effect on these populations (Nordström et al., 2003). However, these were very low-lying islands with the auks nesting under relatively accessible boulders. It would be expected for the situation with cliff nesting, and much less accessible, Razorbill to be rather different.

15. Conversely, the evidence for mink predation on Kittiwake is scant; the Applicant only provides two examples from the UK. The first of these is quoted from Furness *et al.,* (2013) describing a mink at St. Abbs predating "half of the Kittiwake colony during one breeding season", (at the time, this would have been c. 8000 birds). However, the National Trust for Scotland annual

colony report describes this as a *suspected* mink predation event, whereby half a sub-colony, Horsecastle, was lost, accounting for the chicks of 56 breeding pairs. We also note that a more recent review by the same lead author (MacArthur Green, 2021) of potential seabird compensation measures highlights "a lack of clear evidence that this species (*Kittiwake*) would benefit from measures" including mink control.

16. For any mink management (eradication or control) measure to work, the RSPB notes there needs to be evidence of:

- Mink predation of the species required to benefit from the measure (Kittiwake, Razorbill and, preferably, Guillemot); and that:
- The predation is having a detrimental effect on the target colony e.g. evidence of reduced breeding productivity; and
- Evidence that the proposed measure can be successfully implemented and maintained in practical terms; and
- That the species targeted to benefit will respond positively to the measure implemented.

17. While mink predation on seabirds can be extensive, it can also take the form of isolated incidents that can be unpredictable, both in terms of magnitude and of timing of occurrence. This adds considerable uncertainty to outcome predictions of implementation of the measure and as such there would need to be a rigorous monitoring programme in place as an important component of the measure. Further to this, for this measure to be acceptable as compensation there would also need to be a detailed adaptive management plan in place detailing how this measure would be implemented, monitored, and the triggers for adapting the measures when necessary.

18. In terms of predator eradication, mention is made that Scotland only has one active project at the moment - the Scottish Invasive Species Initiative removal project, a mink removal project for the northern third of Scotland that has been active since 2018. However, the RSPB Scotland is a key partner project in the Orkney Native Wildlife project that has been active for some years and is regarded as a flagship predator (stoat) control project. Orkney Native Wildlife Project

Artificial Nesting Structures (ANS)

19. With regard to ANS, we would question their relevance in this instance. Reference is made to the successful work that the RSPB has done regarding hammocks on Coquet Island. However, while there was a lack of nesting opportunities on that island, (witnessed by how quickly those opportunities were filled), in our view, and as indicated by the latest iteration of the seabird Monitoring Report (SMP) 2023, the major driver in the decline of Kittiwake is a reduced food source likely because of changes in sea temperatures and increased fishing efforts prior to the introduction of the restrictions on sandeel harvest. We do not believe that there is evidence of a lack of nesting opportunities along the stretch of coast where the 7 locations for artificial nesting structures are suggested.

Disturbance reduction

20. Disturbance reduction measures are proposed to benefit all species considered to require compensation in response to the HRA conclusions. The report on disturbance reduction accepts that it can be challenging to influence behaviour and to monitor the extent of change that could realistically be evidenced for it.

21. While we would accept that the proposal in principle represents positive interventions, we cannot see how this measure could be relied upon, particularly over the 35-year lifetime of the development. The report suggests a campaign approach. However, such approaches are usually tailored to a short to medium term objectives with very clear asks. There is so much uncertainty around this and some of the measures may infringe upon others 'rights' such as Scottish Outdoor Access legislation or legitimate business interests and other societal trends such as social media and the way in which it encourages visitors to such areas.

22. We note the potential for collaboration with the Scottish Seabird Centre which is a positive step, but it is difficult to see how a programme could translate to compensation for the loss of seabirds from a highly protective legislative perspective.

General

23. The developer indicates that they will collaborate with Berwick Bank regarding predator eradication in the Forth Islands. However, RSPB Scotland do not believe that there are enough options to compensate for the impacts of Berwick Bank on the same species being considered here. Consequently, we are of the view that the measures required of Berwick Bank would likely exhaust the options available in the area and beyond, and that the area cannot provide compensation for other offshore proposals.

24. Of particular concern under Appendix A 7. 'Securing Compensation under Section 36 Consent' there is reference to a condition that 6 months prior to the commencement of the development a detailed compensation implementation and monitoring plan shall be submitted to Scottish Ministers for approval. As noted above, RSPB Scotland's view is that compensation should be provided before impacts occur. We do not see how the submission of a plan with the need for Scottish Ministers to agree those measures then see them implemented is realistic and we would even question its lawfulness under the HRA Regulations because this would mean impacts being approved prior to compensation being provided. This is particularly the case when seabirds are relatively long lived and take time to come to reproductive maturity. Ideally, a resilient population is required before development, and while this may not happen, the proposed measures should be implemented well before impacts occur.

25. While we note the mention in the report of communication around these measures we do feel the need to confirm from an RSPB perspective that we have not been consulted upon these measures in any detailed manner beyond our attendance at a single meeting where compensation was just one part of a broader presentation of the project team's presentation of ornithological survey results on 18 June 2024.

26. Mention is also made of a lack of engagement from site managers. However, we are receiving multiple approaches from different developers with the same measures for the same sites, already indicating that without a strategic framework in place there is already a significant problem with the way compensation is being approached. Consequently, while we will continue to the engage with the developers to the extent we can, we will be moving towards a more strategic approach and are anticipating that the Scottish Government may have a basic framework in place towards the end of this year. We are working on how this could be delivered with the Orkney Native Wildlife Project potentially being a pilot.

Royal Yachting Association

admin@ryascotland.org.uk 07436 296765

10 January 2025

[Redacted]

Marine Licensing Casework Officer
Licensing Operations Team
Marine Directorate, Marine Laboratory,
375 Victoria Road,
Aberdeen, AB11 9DB

MD.MarineRenewables@gov.scot

Dear [Redacted]

Muir Mhor Offshore Wind Farm Limited –
EIA, Section 36 consent and Marine Licence

RYA Scotland has no objection to granting the application of a section 36 consent provided the usual mitigations are put in place and that safety zones are only in place for construction and maintenance with access to small craft permitted during the operational phase.
However, while we are happy with the marine licence application in so far as it relates to the wind farm itself and the export cables, we are concerned that wet storage has not yet been defined. We feel that either the marine licence is not given till this has been addressed or that it is made a condition of the marine licence that a plan for wet storage is agreed with stakeholders and the MD.

Although it may be that the wind farm can be built without using wet storage in Scottish waters, in which case our concern will be addressed, it seems more likely that wet storage will be needed for the efficient development of the site. The documentation states that a wet storage plan will be produced (commitment c-40). However, this needs to be consulted on as part of a formal procedure to avoid adverse impacts on existing users of the water.

Choosing a location will not be easy as there seem to be few potential sites and there will be competition from developers of other floating wind schemes. Some possible sites will be within the areas managed by Statutory Harbour Authorities

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while others will be elsewhere. Temporarily locating a number of floating turbines in an area may well have implications for other users of the water who may not have responded to the current consultation. It is not only the location which is relevant. However, if the area is within a port area the harbour authority has the power to consent it without a requirement to consider the implications for other users.

How the wet storage site is used is also important. This relates to the number of structures at any one time, the number of movements per week, how long the site will be in operation for and whether it will be used subsequently for maintenance of the turbines. A Navigational Risk Assessment will be needed. Presumably the whole site will become a safety zone, which will be relatively large. It is unclear how some of the normal embedded mitigations would be used. In particular, the site is unlikely to be able to be marked on UKHO charts. If outside a SHA it is unclear how Notices to Mariners will be publicised to recreational boaters. Nor is it clear whether the turbines will be considered as vessels at anchor or as structures moored to the seabed with consequent implications for how they are marked and lit. If they are considered as vessels at anchor then there could be a paradoxical situation of recreational moorings and race marks in shallow water requiring a marine licence but a nearby wet storage area with a far greater impact not requiring one.

Yours sincerely,

[Redacted]

Salamander Wind Project Company Limited

Powered by Ørsted and Simply Blue Group

Salamander Wind Project Company Ltd.
E: info@salamanderwind.com
W: https://salamanderfloatingwind.com/

Marine Directorate Licensing Operations Team (MD-LOT)
By email: MD.MarineRenewables@gov.scot

03 February 2025

Our ref. 09159145

Dear Sir/Madam,

RESPONSE TO THE APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND A MARINE LICENCE UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND PART 4 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE THE MUIR MHÒR OFFSHORE WINDFARM, APPROXIMATELY 63 KM OFF THE COAST OF PETERHEAD

Thank you for consulting Salamander Wind Project Company Limited (SWPC) on the application submitted to the Scottish Ministers on 22 November 2024, in accordance with the above legislation, to construct and operate the Muir Mhòr Offshore Wind Farm and transmission infrastructure at a site off the coast of Peterhead by Muir Mhòr Offshore Wind Farm Limited ("the Applicant").

Salamander Offshore Wind Farm is being developed by SWPC, a joint venture partnership between Ørsted, Simply Blue Group and Subsea7. SWPC submitted Section 36 Consent and Marine Licence applications for the Salamander Offshore Wind Farm in April 2024, and is currently awaiting a determination decision from the Scottish Ministers.

The Salamander Offshore Wind Farm is a proposed floating wind farm comprising up to seven offshore wind turbine generators with a capacity of up to 100 megawatts; the Offshore Array Area is located approximately 35 km off the coast of Peterhead. The Offshore Export Cable is proposed to make landfall north of Peterhead, near Lunderton and Kirkton. SWPC has also submitted an application to Aberdeenshire Council for planning permission in principle under the Town and Country Planning (Scotland) Act 1997 for proposed onshore infrastructure including the onshore substation and onshore export cable corridor located on land at Lunderton, to the east of the A90 north of Peterhead.

Muir Mhòr Offshore Wind Farm is located approximately 28 km from the Salamander Offshore Array Area and the export cable corridors (ECC) of both projects overlap each other. Assuming both projects gain all the appropriate consents, it is also expected that their construction periods will overlap.

Given the proximity of the two projects there has already been a range of communication between the applicants, both directly and through the Peterhead Developers Forum. It is anticipated that there will be ongoing dialogue as both projects progress their developments.

Comments in relation to the Offshore Array

In Volume 2, Chapter 10: Fish and Shellfish Ecology, the Applicant has considered the Salamander Offshore Wind Farm in the cumulative effects assessment (CEA), and concludes that there may potentially be significant cumulative impact on spawning herring from multiple projects, including Salamander, undertaking impact piling at similar times. This is similar to the cumulative effects assessment (CEA) for fish and shellfish ecology within the Salamander Offshore Wind Farm EIAR which concluded potential significant cumulative impacts on fish with a swim bladder-inner ear connection used in hearing. SWPC notes the additional mitigation proposed by Muir Mhòr in Volume 4, Appendix 10: In Principle Fish Mitigation Plan, and highlights that the Salamander Project intends to liaise with other projects that have the potential to result in overlapping piling schedules, and where appropriate and practicable, discuss measures to reduce any significant cumulative effects.

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In Volume 2, Chapter 12: Marine Mammals the Applicant has considered the Salamander Offshore Wind Farm in the CEA for marine mammals based on Salamander undertaking piling in 2028 which is in line with the construction schedule presented in the Salamander marine mammals CEA, however SWPC notes that in Table 12-65, offshore construction on the Salamander Offshore Wind Farm is shown continuing into 2030. This is not in line with the construction schedule in the Salamander Project Description which shows the project being operational by 2030, however consideration of Salamander construction continuing in 2030 would potentially result in a more conservative assessment.

Offshore Export Cable Corridor

In Volume 2, Chapter 13: Commercial Fisheries, the Applicant concludes potential significant cumulative impacts on potters along the ECC during construction. This is in line with the conclusions of Salamander's CEA for commercial fisheries, particularly in the nearshore region with multiple offshore wind farms (OWFs) making landfall along a similar stretch of coastline north of Peterhead. SWPC notes the various additional mitigations proposed in Volume 4, Appendix 4: Outline Fisheries Management and Mitigation Strategy (FMMS) to minimise impacts faced by the fishing community from OWFs in the region. SWPC wishes to highlight the additional mitigation measure outlined in the Salamander EIAR proposing development of a joint FMMS between these OWF projects, so that local fishers have clarity on aspects such as the programme of works across multiple projects; key contacts within each individual project; which operational measures will be implemented; use of OFLOs; and use of safety zones etc. SWPC would welcome collaboration with Muir Mhòr on development of this joint FMMS at the appropriate time for both projects.

In Volume 2, Chapter 19: Infrastructure and Other Users, the Applicant includes the Salamander Offshore Array Area in the CEA, but screened out the Salamander ECC from this assessment on the basis that crossing and/or proximity agreements will be in place prior to construction commencing. SWPC agrees with the assumption that these agreements will be developed in good time, however note that there is considerable spatial overlap of the offshore ECCs for the two projects, as well as two other OWF developments (Green Volt and MarramWind), especially in the nearshore and landfall location area. Consequently, SWPC expects that this will be a particular focus for continued bilateral and multilateral engagement in the upcoming months/years during detailed design of all projects to ensure the successful installation of the multiple export cables as well as minimising impacts to the local community and environment as far as practicable.

Onshore Aspects
In Volume 1, Chapter 4: Site Selection and Consideration of Alternatives the Applicant describes the selection process for the landfall with the location 'North of Peterhead' being the final selected site for landfall (and onward export cable corridor to the SSEN Netherton Hub). SWPC notes that the selected site directly overlaps with the southern section of Salamander's Landfall Compound Area of Search. Consequently, it is envisaged that both projects will need to collaborate to ensure safe working practices are adhered to and cumulative impacts to the local community are minimised. However, as this MD-LOT consultation relates to Muir Mhòr's offshore application, SWPC has not considered any further onshore aspects of the Muir Mhòr project in preparing this response.

Summary
Salamander Offshore Wind Farm engages with the Applicant directly as well as via the Peterhead Developers Forum and welcome ongoing dialogue.

We are pleased to have had the opportunity to input at this stage and look forward to working with the

Salamander Wind Project Company Ltd.
E: info@salamanderwind.com
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Muir Mhòr team in relation to potential interactions between our two projects. The Salamander team can be reached through existing contacts or at info@salamanderwind.com.

Yours sincerely

[Redacted]

Scottish Water

Friday, 13 December 2024

Marine Licensing
375 Victoria Road

Aberdeen

Development Operations
The Bridge
Buchanan Gate Business Park
Cumbernauld Road
Stepps
Glasgow
G33 6FB

Development Operations
Freephone Number - 0800 3890379
E-Mail - DevelopmentOperations@scottishwater.co.uk
www.scottishwater.co.uk
Follow Us

Dear Customer,

Muir Mhór Offshore Wind Farm
Planning Ref: 00011025 / 00011026
Our Ref: DSCAS-0123295-DFW
Proposal: EIA, Section 36 consent and Marine Licence Applications

Please quote our reference in all future correspondence

Scottish Water has no objection to this proposal. Please read the following carefully as there may be further action required. Scottish Water would advise the following:

Drinking Water Protected Areas

A review of our records indicates that there are no Scottish Water drinking water catchments or water abstraction sources, which are designated as Drinking Water Protected Areas under the Water Framework Directive, in the area that may be affected by the proposed activity.

Surface Water

For reasons of sustainability and to protect our customers from potential future sewer flooding, Scottish Water will not accept any surface water connections into our combined sewer system.

There may be limited exceptional circumstances where we would allow such a connection for brownfield sites only, however this will require significant justification from the customer taking account of various factors including legal, physical, and technical challenges.

In order to avoid costs and delays where a surface water discharge to our combined sewer system is anticipated, the developer should refer to our guides which can be found at https://www.scottishwater.co.uk/Help-and-Resources/Document-Hub/Business-and-Developers/Connecting-to-Our-Network which detail our policy and processes to support the application process, evidence to support the intended drainage plan should be submitted at

the technical application stage where we will assess this evidence in a robust manner and provide a decision that reflects the best option from environmental and customer perspectives.

Next Steps:

All developments that propose a connection to the public water or waste water infrastructure are required to submit a Pre-Development Enquiry (PDE) Form via our Customer Portal prior to any formal technical application being submitted, allowing us to fully appraise the proposals

I trust the above is acceptable however if you require any further information regarding this matter, please contact me on **0800 389 0379** or via the e-mail address below or at planningconsultations@scottishwater.co.uk.

Yours sincerely,

[Redacted]
Development Services Analyst
PlanningConsultations@scottishwater.co.uk

Scottish Water Disclaimer:

"It is important to note that the information on any such plan provided on Scottish Water's infrastructure, is for indicative purposes only and its accuracy cannot be relied upon. When the exact location and the nature of the infrastructure on the plan is a material requirement then you should undertake an appropriate site investigation to confirm its actual position in the ground and to determine if it is suitable for its intended purpose. By using the plan you agree that Scottish Water will not be liable for any loss, damage or costs caused by relying upon it or from carrying out any such site investigation."

Supplementary Guidance

- Scottish Water asset plans can be obtained from our appointed asset plan providers:
    - Site Investigation Services (UK) Ltd
    - Tel: 0333 123 1223
    - Email: sw@sisplan.co.uk
    - www.sisplan.co.uk

- Scottish Water's current minimum level of service for water pressure is 1.0 bar or 10m head at the customer's boundary internal outlet. Any property which cannot be adequately serviced from the available pressure may require private pumping arrangements to be installed, subject to compliance with Water Byelaws. If the developer wishes to enquire about Scottish Water's procedure for checking the water pressure in the area, then they should write to the Development Operations department at the above address.

- If a connection to the public sewer and/or water main requires to be laid through land out-with public ownership, the developer must provide evidence of formal approval from the affected landowner(s) by way of a deed of servitude.

- Scottish Water may only vest new water or waste water infrastructure which is to be laid through land out with public ownership where a Deed of Servitude has been obtained in our favour by the developer.

- The developer should also be aware that Scottish Water requires land title to the area of land where a pumping station and/or a Sustainable Drainage System (SUDS) proposed to vest in Scottish Water is constructed.

- Please find information on how to submit application to Scottish Water at our Customer Portal.

Scottish and Southern Electricity Networks

Scottish & Southern Electricity Networks
TRANSMISSION

[Redacted]
Marine Directorate – Licencing and Operations Team
By email: MD.MarineRenewables@gov.scot

SSEN Transmission
10 Henderson Road
Inverness
IV1 1SN

27 January 2025

REF: Muir Mhor Offshore Wind Farm Limited – EIA, Section 36 Consent, and Marine Licence Applications - Consultation

Dear [Redacted]

Thank you for the opportunity to make a response to the EIA, Section 36 Consent, and Marine Licence Applications (REF applications 00011025 and 00011026) submitted by Muir Mhor Offshore Wind Farm Limited in November 2024.

We welcome the inclusion of subsea cables in offshore export cable crossings, and note that the design and methodology of any crossings will be confirmed in agreement with the asset owners.

We also welcome the consideration of the Eastern Green Link 2 Project (EGL2) in these applications and note that this project was awarded a marine licence in May 2023 (MS-00009943). As set out in our scoping response to SCOP-26 dated 18 August 2023, we also wish to highlight that the proposed Eastern Green Link 3 (EGL3) and Spittal to Peterhead HVDC subsea cable projects are located within the Infrastructure and Other Users study area (Chapter 19 of the Environmental Impact Assessment Report). The proposed Muir Mhor offshore export cable corridor and array area are situated such that we do not anticipate any direct interaction with the aforementioned projects, however we would wish to maintain good communication with respect to the progress of the Muir Mhor project installation, and subsequent operations which may occur in proximity to our assets. Given the installation timeline of this project, we request that for operations such as PLGR and boulder clearance, adequate notification be provided, and that due care is taken with respect to existing subsea assets.

More information about the EGL3 project can be found at *https://www.ssen-transmission.co.uk/projects/project-map/eastern-green-link-3/*, while further details of the Spittal to Peterhead HVDC cable project can be found at *https://www.ssen-transmission.co.uk/projects/project-map/spittal--peterhead-subsea-cable-link/*.

SSEN Transmission request that present and future cables, both power and telecoms, are given due consideration and that provision is maintained for cables to cross both export cables and the generation site, and that the freedom of the seas is maintained.

SSEN Transmission remains committed to working with other legitimate users of the sea in a proactive manner, enabling both parties to deliver successful projects wherever reasonably possible. As such, we request that ongoing discussion and consultation between both parties is maintained, and where necessary that proximity and crossing agreements are developed.

Please let me know if you have any questions in relation to the above.

Yours sincerely,

[Redacted]

Scottish Environmental Protection Agency

From:	Planning.North
To:	MD Marine Renewables
Cc:	**[Redacted]**
Subject:	PCS-20003956 SEPA Response to ENQ/2024/1009
Date:	09 December 2024 11:39:52
Attachments:	image.png

Dear **[Redacted]**

Marine (Scotland) Act 2010
Marine and Coastal Access Act 2009
Electricity Act 1989 (s.36 Consent)
ENQ/2024/1009
Muir Mhor Offshore Wind Farm Limited
Approximately 63KM Off the Coast of Peterhead

Thank you for your email concerning the project company's intention to submit offshore applications as above. Based on the information provided, it appears that this application falls below the thresholds for which SEPA provide site specific advice. Any applications which are purely within the marine environment, fall below our consultation thresholds. We understand that a separate application will be made for the onshore sections of the development.

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

[Redacted]

Senior Planning Officer

sepa Scottish Environment Protection Agency
Buidheann Dìon Àrainneachd na h-Alba

For the future of our environment

Scottish Fisherman's
Federation

Our Ref: FH-MuirMhorOWF LApp/0025/001

Your Ref: Muir Mhor Offshore Wind Farm Limited – EIA, Section 36 consent and Marine Licence Applications – Consultation

Email dated: 06 December 2024

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

E-mail: MD.MarineRenewables@gov.scot
25 February 2025

Dear [Redacted] MD-LOT

SFF Response to Muir Mhor Proposed Offshore Windfarm License Application

The Scottish Fishermen's Federation (SFF) appreciate the opportunity to make representation 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. The chair of NECRIFG was consulted and agrees.

Please take **this response as a total and unreserved objection** to the planning application for the proposed Muir Mhor Floating Offshore Wind Farm (OWF).

This response should be read with the SFF response to the scoping report. The concerns raised in that earlier response are adopted herein. Our further concerns are set out in this response. The fact that so much traditional fishing opportunities are to be removed in place of a new and unproven energy industry and to date we have no scientific evidence to prove that an OWF of this size will not have an impact on the ecosystem and the marine environment (resulting from the development's physical presence, noise, vibration, damage to seabed from mooring lines, anchors and cables, EMF and wake effects, and more).

It has however been identified within the EIA that the effect on herring stocks not only within the array but on herring stocks as a whole could potentially be under serious threat. The reason being that the array sits on a known herring migratory route. There is no evidence that alternative, viable, migration routes are available. No credible mitigation has been suggested. The ICES advice 2024 on herring advises not to undertake any development that may have impact on herring stocks. The link for the ICES advice can be accessed here: North Sea herring advice.

This however could have been avoided through the governments consultation to the fishing industry to advise on Draft Plan Options (DPOs) for ScotWind. The SFF advised that if the DPO for East2 as Muir Mhor was not known at the time of consultation was moved further East. The impact on the fishing industry would have been much less, to the extent that secondary mitigation would not have been required. The decision not to take on board our advice and knowledge is still to this day unknown. We now face the situation that the Muir Mhor array could wipe out not only a significant number of fishing opportunities, but also severely impact the reproduction of the North Sea herring stock, which is totally unacceptable, morally wrong and more over is inconsistent with the National Marine Plan.

Much has been said about the Spatial Squeeze as a result of the exponential growth of the Offshore Renewable Energy Industry (OREI) however very little has been said about the consequential environmental squeeze. The Muir Mhor OWF exaggerates this impact to the next level and must be taken into account by the regulator.

The proposed Muir Mhòr OWF presents significant challenges and the likelihood of real and significant harm to the fishing industry, as detailed in the environmental impact assessment report. This forms core of our objection. The following are some areas of specific concern.

Loss of Access and Displacement

The wind farm, covering approximately 200 square kilometres, is situated on a prolific fishing ground with high first sale values for a number of fishing vessels which constitutes a high percentage of their annual earnings. The Array will effectively be a 'no take zone' for fishers that have depended on the area for decades.

As a result, fishers will be displaced from the immediate area occupied by the wind farm, in turn causing a domino effect, forcing fishermen into other areas, increasing competition, and leading to conflict with those already fishing there. The EIA highlights the potential for damage to the fishing grounds themselves due to this increased pressure, however, does not highlight any mitigation measure to address this impact.

The loss of access and displacement of fishing opportunities will result in an overall decline of fishery businesses, adversely impacting the socio-economy of coastal communities. It is well recognised that for every fisher working offshore creates five jobs on shore. The real and significant adverse impact upon fishermen will have real and significant impacts upon the communities they currently live in and support. The serious consequences for the coastal community's standard of living, health and well-being that cannot be mitigated by the development mitigation measures.

Gear Conflicts and Safety

The underwater infrastructure of the array, including catenary mooring systems, dynamic cabling and inter array cables, presents a significant risk of gear entanglement. This could lead to damage or loss of expensive equipment but more importantly pose a real and significant safety risk for fishers.

Impact on Specific Fisheries

Demersal Otter Trawlers

These fishers will face significant impacts in EIA terms during construction and the operational and maintenance phase and will be displaced, even with an obstacle-free zone. This will force them to shift their efforts to other fishing grounds, with a significant reduction in productivity.

Pelagic Mid Water Trawlers

Pelagic Mid Water Trawlers will face significant impact in EIA terms during construction and operational and maintenance phases. The array is a **critical migratory route for herring. Disruption of that migratory route has the potential to affect the herring population on a much larger scale.** We are not aware of any assessment of that likely impact.

Cumulative Impacts

The EIA acknowledges that the Muir Mhòr OWF is not an isolated project, and there are other projects, protected areas, and broader trends that affect fishing in the North Sea. The combined effects of multiple projects will further squeeze the space available for fishers, increasing competition and conflict. The EIA recognizes that this cumulative pressure, particularly from the increasing number of floating wind farms, could substantially impact almost every fisher operating in the North Sea. While the report calls for "strategic mitigation efforts," **it does not offer any concrete solutions.** There is no proper assessment of these cumulative impacts.

Effectiveness of Mitigation Strategies

While the developers propose a Fisheries Management and Mitigation Strategy (FMMS), including a financial adaptation fund, a fisheries liaison officer, a fishing industry representative, and an obstacle-free zone these measures are not sufficient to reduce the magnitude of impact from significant to low or negligible. The current mitigation strategies will not fully resolve the long term and operational problems for fishers as a result of the Muir Mhor OWF, such as the issue of displacement and the behavioural changes that would be required, especially the herring migratory route.

Financial Compensation

Financial compensation through an **adaptation fund** to help fishermen during the **construction phase** of the wind farm is unhelpful as it proposes support for imaginary gear adaptation for scallop dredgers and … and has nothing to do with demersal otter trawlers, purse seine and pelagic mid water trawlers that are significantly impacted by the development (in the EIA terms).

While there is an emphasis on minimizing impacts and supporting some fishermen to adapt their gears, there are fewer details about financial compensation for affected fishermen specifically for the operational phase of the wind farm.

The adaptation fund appears to be a key part of the Fisheries Management and Mitigation Strategy (FMMS), designed to offer financial compensation to impacted fishers (evidence based) during the **construction phase.** While the adaptation fund is intended to help fishermen adjust to changes and mitigate economic impacts, it does not explicitly mention additional, specific financial compensation for the **operational phase**. The focus seems to be on creating conditions for fishing to coexist with the wind farm through the obstacle-free zone and other mitigation strategies, rather than offering compensation for lost fishing opportunities during the operational phase. **This is totally unacceptable.**

Uncertainty and Long-Term Effects

The long-term impacts of the wind farm are not known, and there are major concerns about the effectiveness of the mitigation strategies, particularly in relation to changes in **fishing and fish behaviour.** It is also uncertain how the ongoing monitoring program will be implemented and used to address the actual impacts experienced by the fishing community.

The potential damages to the seabed that the proposed mooring lines (except TLP) will cause (as part of the mooring lines will be laid on seabed) has totally been ignored (section 3.5.24. (p12) Ch. Project Description). Our experience from the oil and gas industry's similar floating infrastructures (e.g. floating production storage and offloading (FPSOs) show that mooring lines with contact to the seabed have created massive scours/crates the will require mechanical back-fill at decommissioning stage. This will damage the marine environment, and its remediation efforts will require rock-dump which will change benthic ecology.

Fish and Fish Ecology

ICES Advice

SFF is surprised and disappointed that there is no reference to the ICES advice on North Sea herring contained in the Fish and Ecology EIA documents. ICES is the principle scientific advice provider for the UK government who pay for the services provided by ICES.

ICES has given very clear advice on non-fisheries considerations that state the following: ***ICES advises that no activities on spawning habitats should be allowed unless the effects of these activities have been assessed and shown not to be detrimental.***

SFF is of the opinion that the advice given by ICES is not referenced in the EIA report nor has a mitigation strategy been developed for the "non-fisheries considerations" advice.

Sensitive Receptors

SFF disagrees with the assertion that there is marginal sediment within the southern portion of the array area suitable for herring spawning (Volume-4-Appendix-10-In-Principle-Fish-Mitigation-Plan). SFF is of the view that this should be re-classified as preferred sediment based on the plotter data evidence provided to the developer by SFF constituent association the Scottish Pelagic Fishermen's Association. This data shows a high intensity of herring fishing activity within the southern portion of the array area. SFF disagrees with the report's assumption that the development of the site will have negligible or low impact on the herring stock. SFF is of the view that there will be a significant to high risk for the herring stock being able to reproduce at full capacity, especially when considering the cumulative impact from adjacent developments.

Need for Holistic Approach

The EIA underscores the need for a more holistic approach to ocean management that considers the cumulative effects of multiple projects. It is crucial to balance the need for renewable energy with the need to protect the marine environment and livelihoods of fishers and the wider communities which depend upon them. There must be recognition that this is not just about one wind farm, but about the broader impact on the entire ecosystem.

While the fishing industry acknowledges the need for renewable energy, the Muir Mhòr OWF presents a significant threat to the fishing industry's access to lucrative fishing grounds, causes potential gear conflicts, creates significant displacement issues, that has potentially severe cumulative effects and the very real threat of wiping out an extremely important stock. Its impact would be grossly disproportionate to the contribution it would make to energy supply.

The SFF suggests that the regulators and policy makers must do more to come up with effective solutions to balance the need for renewable energy with the protection of fishers' livelihoods, food security (consideration of low carbon protein) and the broader marine ecosystem.

The SFF must stress that **our position is a robust objection to this application** therefore **all our focus is highlighting to the regulator that this array should not be consented for the reasons set out previously and within the EIA**. **Any Array that has a significant and grossly disproportionate impact on another industry that cannot be mitigated cannot and must not be granted consent.**

If it is consented, then, and only then we will be forced to look at the mitigation measures, adaptation fund etc. Following on from that the SFF would like to bring to your attention the stance that the Planning and Inspectorate in English water has taken regarding a Scallop Mitigation Zone (SMZ) not unlike the obstacle free zone referred to within this EIA. ***"The planning inspectorate is demanding that the applicant provides a provision for last resort compensation in case the SMZ does not work or wipes out the Queenie stock."*** Perhaps this should be a commitment from our regulatory authority in relation to commercial species in and around Muir Mhor OWF.

SFF also objects to the proposed nature compensation measure "Artificial Nesting Structures for Kittiwake" and reiterate that we oppose any nature compensation measures to offset the environmental damage from offshore wind developments that impose any types of restrictions on commercial fisheries. Once again, it is unconscionable that the fishing industry should be expected to pay the price for the environmental harms of the offshore wind industry.

The SFF stresses that our primary concern is protecting the marine environment which has supported the fishers and the wider communities which depend upon them for decades. If fishers are denied the right to earn their living, SFF will not support the proposal of any windfarm development therefore I reiterate that we strongly object to this application.

Sincerely yours

[Redacted]

Offshore Energy Policy Manager
Scottish Fishermen's Federation

Sports Scotland

From:	**[Redacted**
To:	MD Marine Renewables
Subject:	RE: Muir Mhor Offshore Wind Farm Limited – EIA, Section 36 consent and Marine Licence Applications - Consultation – Response Required by 4 February 2025
Date:	07 January 2025 10:42:56
Attachments:	image001.png

Good morning,

We have consulted with RYAS and I confirm nil response on the below application.

Thanks, **[Redacted]**

Transport Scotland

Development Management and Strategic Road Safety
Roads Directorate

George House 36 North Hanover St Glasgow G1 2AD
Direct Line: 0141 272 7593
[Redacted]

TRANSPORT SCOTLAND
CÒMHDHAIL ALBA

[Redacted]
Marine Directorate
Marine Laboratory
Aberdeen
AB11 9DB

MD.MarineRenewables@gov.scot

Your ref:
00011025
00011026

Our ref:
GB01T19K05

Date:
05/02/2025

Dear Sirs,

ELECTRICITY ACT 1989

THE ELECTRICITY (APPLICATIONS FOR CONSENT) REGULATIONS 2017

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 AND A MARINE LICENCE UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND PART 4 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE THE MUIR MHÒR OFFSHORE WINDFARM, APPROXIMATELY 63 KM OFF THE COAST OF PETERHEAD

With reference to your recent correspondence on the above development, we acknowledge receipt of the Environmental Impact Assessment Report (EIAR) prepared by GoBe Consultants Ltd 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 Muir Mhor Offshore Windfarm comprises up to 67 offshore turbines with a total generating capacity of approximately 1 GW, located approximately 63km east of Peterhead with the nearest trunk road to the site being the A90(T) at Peterhead.

In addition to the offshore turbines, the project includes the construction and operation of a generating station and the construction and operation of Transmission Works, with the submitted EIAR supporting the Offshore elements of these three elements of the project.

Transport Scotland was consulted by Marine Scotland on the Scoping Report for the Offshore element of the project and a response was issued on 9th August 2023. In this, we noted that all components of the wind farm would be transported by sea for installation, therefore, we concluded that it is unlikely that the Offshore element of the project will have any perceivable impact on the trunk road network.

We note that the EIAR states that a separate Onshore EIAR is being prepared for submission in Q1 2025, therefore, we can confirm that Transport Scotland has no comment to make on this Offshore EIAR and will await consultation on the Onshore EIAR in due course.

I trust that the above is satisfactory but should you wish to discuss, please do not hesitate to contact me or alternatively, **[Redacted]** at SYSTRA's Glasgow Office who can be reached on 0141 343 9636.

Yours faithfully

[Redacted]

UK Chamber of Shipping

Marine Scotland Marine Renewables
MS.MarineRenewables@gov.scot

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 MUIR MHÒR OFFSHORE WIND FARM

Dear Marine Scotland,

The UK Chamber of Shipping (hereafter "the Chamber") welcomes the opportunity to respond to the Application for Consent for Muir Mhòr Offshore Wind Farm. The Chamber is the trade association for the UK shipping industry, representing over 200 members operating 900 vessels across multiple maritime sectors, including freight, passenger transport, offshore supply, and specialist services. Our role is to ensure that the navigational safety and economic viability of UK shipping are safeguarded amid offshore renewable developments.

The Chamber supports the UK and Scottish Governments' Net Zero commitments, recognising the crucial role of offshore wind. However, it is essential that developments do not compromise navigational safety, operational efficiency, or disrupt key shipping corridors.

We have reviewed the Environmental Impact Assessment (EIA) Chapter 14: Shipping and Navigation, the Navigational Risk Assessment (NRA, Appendix 14.1), and the Consultation Responses (Appendix I) for Muir Mhòr Offshore Wind Farm. Based on our review of these documents, we provide the following comments .

Navigational Risk Assessment & Key Shipping Routes

The Chamber acknowledges the NRA's AIS data analysis (2022-2023) and its assessment of commercial shipping and fishing vessel interactions with the proposed wind farm.

North Sea Traffic & Commercial Port Operations: The proposed site is approximately 35km east of Fraserburgh and 43km from Peterhead, both of which are key commercial ports. The NRA (Figure 14-3) indicates a high density of traffic within 10nm of the development, primarily commercial cargo, tankers, and offshore supply vessels. Further clarification is sought to confirm whether Aberdeen Harbour, Peterhead Port Authority, and Fraserburgh Harbour’s feedback was fully integrated into the final NRA findings. The Chamber welcomes the developer’s engagement with Aberdeen Harbour, Peterhead Port Authority, and Fraserburgh Harbour and recommends that their feedback continues to inform routeing considerations.

Mitigation Measures & Compliance with MGN 654

The EIA outlines embedded mitigation measures in Table 14-11, including:

- Turbine lighting and marking in compliance with IALA and MCA guidelines.
- Designated shipping corridors and consultation with stakeholders.
- Real-time vessel tracking and monitoring.

While these measures align with MGN 654 (Annex 5), the Chamber previously recommended that a Navigation Management Plan be developed to manage interactions between project vessels and third-party users. The NRA references the inclusion of a Vessel Management Navigational Safety Plan (VMNSP), which is a welcomed embedded mitigation measure. The Chamber supports this initiative and encourages continued engagement with maritime stakeholders to validate the effectiveness of the proposed safety corridors.

Wet Storage Areas

The Chamber previously raised concerns regarding wet storage areas in the scoping response, particularly regarding potential vessel displacement and navigational conflicts. The NRA acknowledges wet storage (Section 6.4) but has scoped it out of the assessment as the developer is not currently applying for licensing of wet storage areas. However, a Wet Storage Plan (WSP) is expected post-consent if required. Should wet storage areas be introduced post-consent, the Chamber recommends they be subject to a full Navigational Risk Assessment to ensure vessel displacement and loss of station risks are properly evaluated.

Recommendations

1. Stakeholder Engagement & Traffic Validation: Maintain engagement with Aberdeen Harbour Board, Peterhead Port Authority, Fraserburgh Harbour, and offshore oil operators to validate NRA traffic assumptions.
2. Emergency Response Planning: Clarify SAR coordination and anchorage zone adequacy, ensuring compliance with best maritime safety practices.
3. Validation of Mitigation Measures: Support the inclusion of the Vessel Management Navigational Safety Plan (VMNSP) and encourage ongoing validation of safety corridors through maritime stakeholder engagement.

Conclusion

The Chamber appreciates the efforts made in assessing navigational risks for Muir Mhòr Offshore Wind Farm. We appreciate the opportunity to contribute to this consultation and look forward to further engagement on ensuring safe and efficient maritime operations alongside renewable energy expansion.

Yours sincerely,

[Redacted]

Policy Manager - Safety
UK Chamber of Shipping
[Redacted]@ukchamberofshipping.cpm