**Marine Directorate - Licensing Operations Team: Scoping Opinion for Muir Mhòr Offshore Wind Farm SCOP-0026**

# Appendix I: Consultation Responses & Advice

# Aberdeen Airport

Aberdeen International Airport Limited
Dyce, Aberdeen
AB21 7DU
Scotland

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

FAO Emma Lees
Marine Licensing and Consenting Casework Officer
Licensing Operations Team
Marine Directorate
Scottish Government

*Via Email*

ABZ Ref: ABZ3169

11th August 2023

Dear Emma

**REQUEST FOR SCOPING OPINION FOR PROPOSED SECTION 36 APPLICATION AND MARINE LICENCES FOR THE MUIR MHÒR OFFSHORE WIND FARM LOCATED APPROXIMATELY 63KM EAST OFF THE COAST OF PETERHEAD**

I refer to your request for scoping opinion received in this office on 11th July 2023.

The scoping report submitted has been examined from an aerodrome safeguarding perspective and we would make the following observations:

- The proposed site is located outwith the obstacle limitation and instrument flight procedure safeguarding areas for Aberdeen Airport. It is partially within the wind farm consultation zone for Aberdeen Airport and as such radar impacts should be considered as part of the EIA.

- The proposed turbines will likely be detected by Aberdeen Airport's primary surveillance radar and generate clutter on air traffic control displays.

- In the event the turbines are predicted to be visible to our radar a safeguarding objection may be raised.

Our position with regard to this proposal will only be confirmed once the turbine details are finalized and we have been consulted on a full planning application. At that time we will carry out a full radar impact assessment and will consider our position in light of, inter alia, operation impact and cumulative effects.

Yours Sincerely
[redacted]

Kirsteen MacDonald
Safeguarding Manager
Aberdeen Airport
[redacted]
abzsafeguard@aiairport.com

# Aberdeenshire Council

Our Ref: ENQ/2023/1017

Ask for: James Hewitt
Tel: 01467 533055
Email: james.hewitt@aberdeenshire.gov.uk

Scottish Government
Marine Directorate
Marine Laboratory
Aberdeen
AB11 9DB

25 August 2023

Dear Sir/Madam

**The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017**
**The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017**
**The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2007**

**Consultations in respect of an EIA Scoping Opinion for Offshore Aspects of Muir Mhor Offshore Wind Farm located approximately 63km east of Peterhead.**

1.1 I refer to your consultation in respect of a Scoping Request for the above proposal received on 11 July 2023. I am now in receipt of all the necessary information, and I can now offer a response to this consultations.

1.2 It is noted that this Scoping relates to the Offshore elements of the development, and a separate Scoping exercise has been undertaken in respect of the Terrestrial development. Comments within this consultation response relate solely to effects which may arise due to offshore infrastructure and are limited to those which may impact upon Aberdeenshire Council.

2.0 <u>Response Overview</u>

2.1 Having reviewed the submitted documentation the Planning Service agrees the proposed Scope of the EIAR in relation to those aspects which may impact upon the Aberdeenshire Council Area.

3.0 <u>Site Description, approach to consenting and EIA Methodology</u>

3.1 The site description and characteristics of the development have been satisfactorily identified within the Scoping Report.

3.2 It is noted that separate applications shall be submitted for the Onshore and Offshore developments (TCP / S36).

3.3 The EIA Methodology outlined within the Scoping report appears to be orthodox and is therefore acceptable.

4.0 Planning Policy

4.1 In respect of Planning Policy, the Service has little to add to the proposed scope. It should be noted that the primary means of assessment for onshore impacts shall be the Development Plan (Aberdeenshire Local Development Plan 2023 and National Planning Framework 4). Whilst these documents would not have primacy, they will be key considerations for the Council.

5.0 Intertidal Ecology and Ornithology

5.1 It is noted that responsibility for the inter-tidal zone is shared between Marine and Terrestrial Planning. Whilst the Planning Service has little by way of additional comment to make on this matter, the proposed scope of assessment appears to be logical in so far as our interests.

5.2 The decision to consider sites designated for ornithology through an HRA is welcomed.

6.0 Seascape, Landscape and Visual Impact

6.1 This chapter has been reviewed by the Planning Service. The approach is considered to be orthodox, and the rationale is accepted in relation to the scope of the assessment. At this stage, the Planning Service has no additional comments to make in relation to additional guidance or requirements.

7.0 Conclusion

7.1 I hope the above information is of assistance as a formal scoping opinion in respect of the relevant EIA Report. Obviously during the processing of any associated planning application other issues may become obvious following public consultation and consultations with statutory consultees.

7.2 This opinion will be held for public inspection for a two-year period, or until a planning application is submitted at which time the opinion will be transferred to the planning register with the application.

Yours faithfully

[redacted]

Paul Macari
Head of Planning and Economy

Case Officer: James Hewitt (Senior Planner)
Date: 25 August 2023

# Angus Council

| | |
|---|---|
| **From:** | Stephanie G Porter |
| **To:** | MS Marine Renewables |
| **Subject:** | RE: SCOP-0026 - Muir Mhór Offshore Wind Farm - Consultation on Request for Scoping Opinion - Response Required by 10 August 2023 |
| **Date:** | 11 July 2023 15:20:48 |
| **Attachments:** | image001.png<br>image003.png |

Dear Sir/Madam,

REQUEST FOR SCOPING OPINION FOR PROPOSED SECTION 36 APPLICATION AND MARINE LICENCES FOR THE MUIR MHÒR OFFSHORE WIND FARM LOCATED APPROXIMATELY 63KM EAST OFF THE COAST OF PETERHEAD

**REGULATION 14 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017**
**REGULATION 12 OF THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017**
**REGULATION 13 AND SCHEDULE 4 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007**

I refer to the above consultation and having reviewed the submitted information, as the development lies some distance from Angus, Angus Council has no comment to make in this case.

Yours sincerely,

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

# British Telecom (BT)

| | |
|---|---|
| **From:** | radionetworkprotection@bt.com |
| **To:** | MS Marine Renewables |
| **Cc:** | Emma Lees; radionetworkprotection@bt.com |
| **Subject:** | FW: WID13137- SCOP-0026 - Muir Mhór Offshore Wind Farm - Consultation on Request for Scoping Opinion - Response Required by 10 August 2023 |
| **Date:** | 08 August 2023 13:41:57 |
| **Attachments:** | image001.png<br>image004.png<br>image006.png |

BT Group

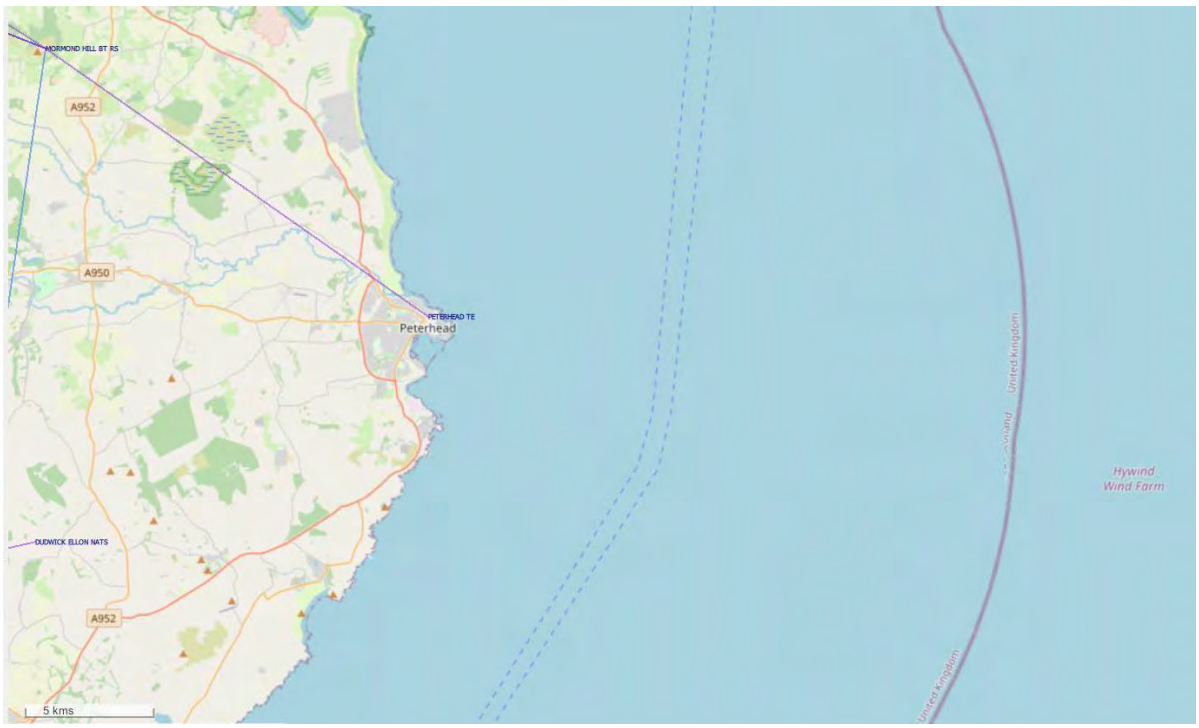
**OUR REF; WID13137**

Thank you for your email dated 11/07/2023.

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

The conclusion is that, the proposed location of 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

**Laura Taylor**
National Radio Planner
Network Planning

E: radionetworkprotection@bt.com

BT Group

# Cenos Offshore Wind Farm

10th August 2023

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

Dear Ms Lees

**Regulation 14 of The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017**
**Regulation 12 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017**
**Regulation 13 and Schedule 4 of The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2007**

**SCOP-0026 - Muir Mhòr Offshore Wind Farm – Muir Mhòr Offshore Wind Limited**

Thank you for consulting the Cenos Floating Offshore Windfarm project on the scoping report submitted in respect of the proposed section 36 application and marine licence applications for the Muir Mhòr Offshore Wind Farm by Muir Mhòr Offshore Wind Limited.

The Cenos Floating Offshore Windfarm project ('Cenos') is being developed by Flotation Energy Ltd (Flotation Energy) and Vårgrønn AS (Vårgrønn). 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 Cenos project information are available on the Cenos website and pre-application documents on the Marine Scotland's website.

**Muir Mhòr Offshore Wind Farm is located approximately 105 km from the Cenos Windfarm site** and the offshore export cable corridor overlaps with the Cenos offshore export cable route. Given the proximity of the two projects the Cenos team will look to communicate with the applicant directly and through the Peterhead Developers Group, as appropriate.

**Offshore Aspects**

In addition to the Muir Mhòr and Cenos offshore export cable routes overlapping, the two projects have identified similar landfall locations near Peterhead. The Cenos cable from the offshore electricity hub to shore will partially utilise the NorthConnect cable interconnector corridor. The nearshore and onshore elements of the electrical systems namely the DC cabling within the NorthConnect corridor, cable landfall, onshore cabling and onshore converter station with AC connection to Peterhead substation have already been consented.

We understand that the proposed Muir Mhòr Offshore Wind Farm has not confirmed a landfall site yet but several landfall sites fall within the offshore export cable corridor along the south-eastern Scottish coastline. Paragraph 8.4.25 of the Scoping Report suggests that the landfall site will be located along the coastline between Peterhead and Cruden Bay. Additionally, Figure 8-2 on page 115 shows a separate cable corridor landing between St Fergus and Peterhead. These proposed landfalls are in the vicinity of the consented NorthConnect cable landfall, which the Cenos project will utilise. Therefore, there is the potential for interactions between the two projects' offshore export cable corridors, including possible cable crossings.

Based on these potential interactions with Cenos, we would anticipate that the offshore EIA for the proposed Muir Mhòr Offshore Wind Farm should consider the following:

- impacts on the offshore elements of the Cenos Offshore Wind Farm project, including:
    - Windfarm site;
    - Offshore export corridor between the offshore substation to the landfall;
    - Increased vessel traffic and from the physical presence of Muir Mhòr infrastructure that may lead to interactions with activities related to Cenos.

**Cenos has an operational target date of 2028**. As such, we would appreciate if Muir Mhòr Offshore Wind Limited would continue to engage with the Cenos project team through their design development process to ensure that both sets of cables can be appropriately accommodated while ensuring environmental effects are minimised. The timing of installation works being a particular area of interest, as if works are planned for both projects at the same time, then they will need to be appropriately sequenced and managed to avoid cumulative effects. No anticipated long term cumulative significant environmental impacts are expected once the cables have been installed.

Yours sincerely,

Mailys Billet
Senior Offshore Consenter, Flotation Energy Ltd

# Cerulean Winds

| | |
|---|---|
| **From:** | Richard Sheppard |
| **To:** | MS Marine Renewables |
| **Subject:** | NIL RETURN RE: SCOP-0026 - Muir Mhór Offshore Wind Farm - Consultation on Request for Scoping Opinion - Response Required by 10 August 2023 |
| **Date:** | 08 August 2023 12:07:20 |
| **Attachments:** | image003.png<br>image004.png<br>image005.png |

Dear Emma, MS LOT,

Thank you for reaching out for Cerulean Winds' Scoping opinion on this Muir Mhór development.

We have reviewed the report and respond to MS with 'Nil Return'.

Kind Regards,

**Richard Sheppard**

# Department of Agriculture, Environment and Rural Affairs (DAERA)

| | |
|---|---|
| **From:** | Brady, Eamonn |
| **To:** | MS Marine Renewables |
| **Cc:** | Hamill, Kevin; Taylor, Fiona; McCann, Damian; Clements, Annika; Toland, Mary; Rooney, Aoibheann |
| **Subject:** | SCOP-0026 - Muir Mhòr Offshore Wind Farm - Consultation on HRA Screening Report - Response Required by 10 August 2023 |
| **Date:** | 17 August 2023 09:49:20 |
| **Attachments:** | image001.png |

Hi
Nil response from MFD. Thanks
Eamonn

**Eamonn Brady | Marine Plan Team |** Department for Agriculture, Environment and Rural Affairs
Level 1 | Klondyke Building | Cromac Avenue | Belfast | BT7 2JA
**Contact:** Eamonn.Brady@daera-ni.gov.uk | **Tel:** (028) 90 569262 | **DD:** 69262.

# Dee District Salmon Fishery Board

# Dee District Salmon Fishery Board

Marine Licensing and Consenting Casework Officer
Licensing Operations Team
Marine Directorate
Scottish Government
Marine Laboratory
375 Vicotria Road
Aberdeen
AB11 9DB

By email to MS.MarineRenewables@gov.scot
11th August 2023

Dear Emma Lees,

REQUEST FOR SCOPING OPINION FOR PROPOSED SECTION 36 APPLICATION AND MARINE LICENCES FOR THE MUIR MHÒR OFFSHORE WIND FARM LOCATED APPROXIMATELY 63KM EAST OFF THE COAST OF PETERHEAD

*SCOP-0026 - Muir Mhór Offshore Wind Farm - Consultation on Request for Scoping Opinion*

**REGULATION 14 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017**
**REGULATION 12 OF THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017**
**REGULATION 13 AND SCHEDULE 4 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007**

On behalf of the Dee District Salmon Fishery Board (Dee DSFB) we welcome the opportunity to respond to the *Muir Mhór Offshore Wind Farm - Consultation on Request for Scoping Opinion*

***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***

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.

Assessment of the juvenile salmon stocks in the Dee through the National Electrofishing Programme for Scotland (NEPS) has evaluated juvenile stocks in the Dee as Grade 2, 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 salmon stocks.

**Position**

The Dee DSFB welcomes the opportunity to respond to the scoping opinion 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 on this consultation 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. 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**.

In order to properly assess Environmental Statements for developments, information on the use of the development area by diadromous fish should be provided. We note that in chapter 9 of the scoping report (9.3.31) the statements that "some diadromous species may cross the proposed development as part of their migration or for foraging", followed by the statement that "the SAC rivers such as the Dee whose dominant migration pathways have the potential to pass through development area". 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

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.

*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. 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.

*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. Particular 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.

**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 Scotland 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.

Yours sincerely

[redacted]

Jamie Urquhart
Fisheries Protection Manager, Dee District Salmon Fishery Board

# Fisheries Management Scotland (FMS)

Fisheries Management Scotland

T: +44 (0)131 221 6567

E: alan@fms.scot

Marine Directorate Marine Renewables (by e-mail)

15 August 2023

**SCOP-0026 - Muir Mhór Offshore Wind Farm - Consultation on Request for Scoping Opinion**

Dear Sir/Madam,

Fisheries Management Scotland is the representative body for Scotland's District Salmon Fishery Boards, the River Tweed Commission and charitable Rivers and Fisheries Trusts. Our members work to conserve Scotland's valuable and iconic wild salmon and freshwater fish and fisheries and the aquatic environment on which they depend.

We recognise the importance of reducing $CO_2$ emmissions of offshore energy assets. However, there remain a number of outstanding questions and concerns about the potential negative effects of the proposed development on diadromous fish, including Atlantic salmon and sea trout.

District Salmon Fishery Boards have a statutory duty to protect and improve salmon and sea trout fisheries. In assessing marine developments, it is important that DSFBs and Fisheries Trusts, can be assured that all potential negative impacts have been assessed in full, and mitigations put in place. Where uncertainty remains, the developer should be required to contribute to research which will help fill these evidence gaps, ***as a condition of operational consent***. In addition, and in the light of the nature crisis, we believe that all developers should contribute to projects designed to conserve and restore important habitat at a catchment scale.

Across Scotland, wild salmon populations are in crisis, and face a range of pressures, some of which are under human control. The Scottish Government have published a wild salmon strategy and implementation plan, which sets out the actions to be taken over a five year period to 2028. The implementation plan includes a number of actions under the heading of understanding and mitigating pressures in the marine and coastal environment.

Where salmon populations are below their conservation limits, any additional pressure, including from marine developments, cannot be considered sustainable. Scottish salmon rivers are categorised by the Scottish Government under The Conservation of Salmon (Scotland) Regulations 2016, according to the likelihood of them meeting their conservation limits. The most recent river gradings have been published for 2023. There are now 113 rivers across Scotland graded as Category 3, meaning there is a less than 60% probability of meeting their conservation limit. Grade 3 rivers of relevance to the proposed development include the Ugie, Ythan, Don, Cowie Water and Carron Water (both Dee District).

There are 17 Special Areas of Conservation for Atlantic salmon. For sea lamprey, there are six SAC sites and for river lamprey, there are six SAC sites. For freshwater pearl mussel, there are 19 SAC sites. The SACs that we consider relevant to the proposed development are listed below.

- River Spey SAC (Salmon, Sea Lamprey and Freshwater Pearl Mussel)
- River Dee SAC (Salmon and Freshwater Pearl Mussel)
- River South Esk SAC (Salmon and Freshwater Pearl Mussel)
- River Tay SAC (Salmon, Sea Lamprey and River Lamprey)

Whilst there is often a focus on rivers designated at Special Areas of Conservation (SACs), it is important to recognise that the drivers behind declines in wild salmon and sea trout, and other species of migratory fish, affect **all** rivers to a greater or lesser extent. On that basis, and in recognition that the marine phases of both Atlantic salmon and sea trout are included on the list of Priority Marine Features - the habitats and species of *greatest conservation importance* in inshore waters, it is important that the following rivers are also fully considered in the consenting and assessment process.

- River Deveron
- River Ugie
- River Ythan
- River Don

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. 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**.

In order 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 site 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

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. We note that this is included in the scoping report, but there is no specific reference to diadromous fish.

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. As the proposed development will use floating foundations, EMFs are a particular concern, due to the suspension of cables in the water column. The scoping report acknowledges the emerging research on EMF impacts on fish and shellfish, especially for dynamic cables, and we expect this issue to be given particular attention. 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 note that this issue has not been proposed for further consideration within the Cumulative Impacts Assessment. We do not agree with this conclusion and believe that the cumulative impacts of EMFs should be considered in full.

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. Particular 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.

iv. *Aggregation effects*

Construction of wind turbines often result in the loss of some habitat types (such as soft sediment) and creation of new, artificial vertical habitats. The associated increase in species diversity can attract fish and ultimately predators. The potential for these structures to aggregate predators, and act as predation 'hot-spots', particularly when located in marine areas utilised by diadromous fish for feeding or migration, should be assessed in full. This is an important consideration in the case for seals, and some species of birds. Whilst the scoping report recognised the potential for new hard substrates to act as a fish aggregating device, and potentially attract larger predators, the impact of those predators on species passing through the development does not appear to have been considered. The secondary impact of predators on diadromous fish should be fully considered in the EIA.

v. *Visual effects*

Moving turbine blades above the surface of the water may have a range of effects on diadromous fish and may even present a potential barrier effect to migratory species. Moving turbine blades will be visible to fish over large areas near offshore windfarms, particularly in the case of epipelagic species like salmonids, which swim near the ocean surface. Broad visual effects can be direct (those associated with the perception of reflected light from turbines via the visual image represented in Snell's window - a phenomenon by which an underwater viewer sees everything above the surface through a cone of light of width of about 96 degrees). Flicker effects from turbines are only expected to occur during the brief period of the day when receptor, turbine and sun are aligned,

and therefore represent a sub-set of the larger potential effects arising from direct perception of movement above the surface. As fish are susceptible, and therefore highly sensitive, to predation from above, how they perceive and react to such movement requires further investigation. Previous attempts to explore this phenomenon[1] have focussed on shadow flicker, and neglect the wider effects detailed above. There is currently no information on the risk of visual effects of moving turbine blades. However, we would highlight that there is accumulating evidence for widespread avoidance of offshore turbines by large-bodied birds. If this is the case for migratory fish, then site-specific and cumulative impact studies will be required. This potential impact should dbe scoped into the EIA.

**Conclusion**

As stated above, Fisheries Management Scotland recognises the importance of offshore renewable energy. However, where a Natura site is involved, and in the context if the wild salmon crisis, the onus is on the developer to demonstrate no impact and in the absence of that the precautionary principle must apply.

We have no wish to prevent or delay any proposed development unnecessarily and we remain keen to work constructively with the developers and Marine Scotland 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.

The scale of proposed offshore developments and other technical approaches to marine renewables development represents a step-change in the exposure of marine animals of high cultural and economic significance to attendant risks. As highlighted above, understanding of many of these risks is insufficient to support proposals for mitigation even at this late stage when substantial developments are being submitted for licensing. The cumulative impact of this proposal alongside those developments already submitted or likely to follow in the near future is potentially even greater.

Yours faithfully,

[redacted]

Dr Alan Wells
CEO, Fisheries Management Scotland

[1] e.g. Dodd, J.A. & Briers, R.A. (2021) The Impact of Shadow Flicker or Pulsating Shadow Effect, Caused by Wind Turbine Blades, on Atlantic Salmon (Salmo salar) CD2020_08. Scotland's Centre of Expertise for Waters (CREW). Available online with supporting documents at: crew.ac.uk/publications

# Green Volt Offshore Wind Farm

10th August 2023

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

Dear Ms Lees

**Regulation 14 of The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017**
**Regulation 12 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017**
**Regulation 13 and Schedule 4 of The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2007**

**SCOP-0026 - Muir Mhòr Offshore Wind Farm – Muir Mhòr Offshore Wind Limited**

Thank you for consulting Green Volt Offshore Windfarm Limited on the scoping report submitted in respect of the proposed section 36 application and marine licence applications for the Muir Mhòr Offshore Wind Farm by Muir Mhòr Offshore Wind Limited.

Green Volt Offshore Windfarm Limited has been formed by Flotation Energy Ltd (Flotation Energy) and Vårgrønn AS (Vårgrønn), the developers of the Green Volt Offshore Windfarm ('Green Volt'). 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 Green Volt applications and other project information are available on the Green Volt website and Marine Scotland's website.

**Muir Mhòr Offshore Wind Farm is located approximately 38 km from the Green Volt windfarm site** and the offshore export cable corridors overlap with the two Green Volt offshore export cable route options. Given the proximity of the two projects Green Volt will look to communicate with the applicant directly and through the Peterhead Developers Group, as appropriate.

**Offshore Aspects**
In addition to the Muir Mhòr and Green Volt offshore export cable routes overlapping, the two projects have identified similar landfall locations near Peterhead. Green Volt's landfall options include the St Fergus South (north of Peterhead) landfall and the NorthConnect Parallel landfall near Boddam.

We understand that the proposed Muir Mhòr Offshore Wind Farm has not confirmed a landfall site yet but several landfall sites fall within the offshore export cable corridor along the south-eastern Scottish coastline. Paragraph 8.4.25 of the Scoping Report suggests that the landfall site will be located along the coastline between Peterhead and Cruden Bay. Additionally, Figure 8-2 on page 115 shows a separate cable corridor landing between St Fergus and Peterhead. These proposed offshore export cable corridors land in the vicinity of the Green Volt project proposed landfall options. Therefore, there is the potential for interactions between the two project's offshore export cable corridors, including possible cable crossings.

Based on these potential interactions with Green Volt, we would anticipate that the offshore EIA for the proposed Muir Mhòr Offshore Wind Farm should consider the following:

- impacts on the offshore elements of the Green Volt Offshore Windfarm project, including:
  - Windfarm site;
  - Offshore export corridor between the offshore substation to the landfall;
  - Increased vessel traffic and from the physical presence of Muir Mhòr infrastructure that may lead to interactions with activities related to Green Volt.

**Green Volt has an operational target date of 2027** and should be included in any cumulative assessments.

**Onshore Aspects**
We note that the Muir Mhòr Offshore Wind Farm proposed landfall between St Fergus and Cruden Bay has a potential for interactions with the landfall options for Green Volt (St Fergus South and NorthConnect Parallel) and with the Green Volt onshore export cable route towards New Deer. The onshore EIA report covering the onshore elements of the Green Volt Offshore Wind Farm was submitted to Aberdeenshire Council on 03rd August 2023.

We understand that an extensive onshore area of search around Peterhead, Aberdeenshire has been identified for installing the onshore elements of the Muir Mhòr Offshore Wind Farm.

Given the potential for both the Muir Mhòr and Green Volt projects to have onshore works in the St Fergus/North Parallel landfall areas, we would anticipate that the onshore EIA should consider the following:

- Direct impacts on the onshore elements of the Green Volt, including landfall works, such as the Horizontal Directional Drilling (HDD) compound, and the onshore export cable route to New Deer.

We would welcome ongoing engagement with the Muir Mhòr team throughout the EIA process, and particularly on the outcomes of any cumulative impact assessment undertaken by them. The Green Volt team can be contacted at hello@greenvoltoffshorewind.com.

Yours sincerely,

Mailys Billet
Senior Offshore Consenter, Flotation Energy Ltd

# Historic Environment Scotland (HES)

HISTORIC ENVIRONMENT SCOTLAND | ÀRAINNEACHD EACHDRAIDHEIL ALBA

**By email to:**
**MS.MarineRenewables@gov.scot**

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

Longmore House
Salisbury Place
Edinburgh
EH9 1SH

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

Our case ID: 300064023
Your ref: SCOP-0026
22 August 2023

Dear Marine Scotland

The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017
SCOP-0026 - Muir Mhór Offshore Wind Farm - Scoping Opinion

Thank you for your consultation which we received on 11 July 2023 about the above scoping report. We have reviewed the details 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 (HMPAs).

**Proposed Development**
The Scoping report relates to the construction of a 1GW offshore wind farm 63km east of Peterhead extending to about 200km$^2$ in area and comprising 67 turbines, three offshore electrical platforms, cables, and associated infrastructure.

A standalone onshore Scoping report will be forthcoming separately and this Scoping report relates only to the marine elements of the project.

**Our Advice**
We are content with the approach and conclusions of the Scoping report. We welcome that the Scoping report proposes to scope in impacts due to the potential for direct and indirect impacts on marine heritage assets. Although the cable corridor passes through an area with multiple wrecks, the methodology and embedded mitigation proposed in the scoping report are deemed appropriate at this stage. For this reason, we are content for cultural heritage assets within our remit to be scoped out of the EIA assessment. Further information is included in the annex below.

**Further information**
Guidance about national policy can be found in our 'Managing Change in the Historic Environment' series available online at www.historicenvironment.scot/advice-and-support/planning-and-guidance/legislation-and-guidance/managing-change-in-the-historic-environment-guidance-notes. Technical advice is available on our Technical Conservation website at https://conservation.historic-scotland.gov.uk/.

We hope this is helpful. Please contact us if you have any questions about this response. The officer managing this case is Sam Fox and they can be contacted by phone on 0131 668 6890 or by email on samuel.fox@hes.scot.

Yours faithfully

**Historic Environment Scotland**

HISTORIC ENVIRONMENT SCOTLAND | ÀRAINNEACHD EACHDRAIDHEIL ALBA

# Annex

**Background**
HES has had previous involvement with this development. HES attended an early-stage introductory meeting in April 2023 which provided a brief overview of the project and timeline. As plans were still in development, we did not provide advice around specific heritage assets but noted that the applicant should ensure intertidal sites are considered either in the offshore or onshore application process.

**Our Interests & Scoping Report**
We note that there are no known heritage assets in the array area and 62 heritage assets within the wider study area; 39 of which are still 'live' wrecks which have not been salvaged. There are 4 World War II crash sites recorded within the study area, but we note that their locations are approximate.

The Scoping report proposes that marine archaeology and assets be scoped in for assessment due to the potential for direct and indirect impacts on marine heritage assets. This is due to the loss of or damage to known and unknown marine historic environment assets from direct impacts, the loss of or damage to submerged prehistoric landscapes from physical impacts and the indirect disturbance to marine assets caused by cable burial methods and/or cable protection are scoped in during the construction and decommissioning phases of the project (p.293).

The report also notes (p.290-291) that during the operation and maintenance of the windfarm the loss of or damage to known and unknown historic environment assets from direct impacts, the loss of or damage to submerged prehistoric landscapes from direct impacts, and the indirect disturbance to marine historic environment assets caused by additional cable protection during repair and maintenance are all scoped in for assessment (p.293-294). The Scoping report also outlines mitigations including a Marine Written Scheme of Investigation, the implementation of a Protocol for Archaeological Discoveries, scour protection and a decommissioning plan

We are content with the approach and scope of this assessment and we welcome that the the applicant proposes to Scope the above impacts into their assessment. However, we are content that the methodology and embedded mitigation proposed in the scoping report are deemed appropriate at this stage and for cultural heritage assets within our remit to be scoped of the EIA report undertaken in support of the proposals.

**Historic Environment Scotland**
22 August 2023

| | |
|---|---|
| **From:** | Samuel Fox |
| **To:** | Jennifer Goodheir |
| **Subject:** | RE: SCOP-0026 - Consultation Response |
| **Date:** | 01 September 2023 14:51:07 |
| **Attachments:** | image001.png<br>image003.png<br>image004.png<br>image006.png<br>image007.png<br>image008.png<br>image009.png<br>300064023 EIA scoping.pdf |

Good afternoon Jennifer.

Many thanks for your query. To clarify, for the offshore elements of the proposal we confirm that Marine Archaeology should be scoped in, but impacts on cultural heritage, such as setting impacts by the marine cable, can be scoped out of the EIA report for the offshore elements. We understand that a standalone onshore EIA scoping report relating to impacts of onshore infrastructure will be submitted separately, and that this will consider impacts to onshore cultural heritage assets within our remit from the turbines and associated infrastructure. We are content with this approach.

I have included an amended response for clarity. Please do get in touch if you have any further questions.

Kind regards,
Sam

**Samuel Fox | Senior Environmental Assessment and Advice Officer | Planning, Consents and Advice Service | Heritage Directorate**

Historic Environment Scotland | Àrainneachd Eachdraidheil Alba
Longmore House, Salisbury Place, Edinburgh, EH9 1SH

www.historicenvironment.scot

**Learn more about our role in the planning system in this short video.**
**Read about what the Heritage Directorate has been working on by signing up to Lintel, our quarterly newsletter.**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**From:** Jennifer.Goodheir@gov.scot <Jennifer.Goodheir@gov.scot>
**Sent:** 25 August 2023 13:04
**To:** Laura Denholm <laura.denholm@hes.scot>; Heritage - Consultations Mailbox <HMConsultations@hes.scot>
**Cc:** Jennifer.Goodheir@gov.scot; MS.MarineRenewables@gov.scot
**Subject:** RE: SCOP-0026 - Consultation Response

**Importance:** High

Good afternoon,
Please accept my apologies, on re-reading the HES response I can see clearly that your advice is to scope in Marine Archaeology and assets. Please ignore my comments regarding Marine Archaeology in my earlier email (below).
We only require clarity from on whether Cultural Heritage should be scoped in or out of the EIA Report.
Thank you for your patience and we look forward to your response.
Kind regards,
Jenny

**Jennifer Goodheir (pronouns she/her)**
**Casework Officer, Marine Directorate - Licencing Operations Team (MD - LOT)**
Scottish Government | 5 Atlantic Quay | 150 Broomielaw | Glasgow | G2 8LU
E: jennifer.goodheir@gov.scot
**The Scottish Government**


**From:** MS Marine Renewables
**Sent:** Friday, August 25, 2023 12:33 PM
**To:** Laura Denholm <laura.denholm@hes.scot>; HMConsultations@hes.scot
**Cc:** MS Marine Renewables <MS.MarineRenewables@gov.scot>
**Subject:** RE: SCOP-0026 - Consultation Response
**Importance:** High

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Good afternoon,
Thank you for your recent comments provided in response to the Muir Mhór Offshore Wind Farm SCOP-0026 EIA Scoping Report, your ref. **case ID 300064023**.
We are currently drafting our Scoping Opinion and require some clarification from HES on your position.
I would be grateful if you could clarify whether the receptor **Marine Archaeology and Cultural Heritage** can be scoped in or out of the EIA Report.
Within your initial advice paragraph, it states
*'Although the cable corridor passes through an area with multiple wrecks, the methodology and embedded mitigation proposed in the scoping report are deemed appropriate at this stage. For this reason, we are content for cultural heritage assets within our remit to be scoped out of the EIA assessment.'*
The final paragraph in the annex states *'…However, we are content that the methodology and embedded mitigation proposed in the scoping report are deemed appropriate at this stage and for cultural heritage assets within our remit to be scoped of the EIA report undertaken in support of the proposals.'*
My understanding is that Cultural Heritage can be scoped out on the basis of the proposed methodology and embedded mitigation.
For the avoidance of doubt, could you also advise if when you refer to Cultural Heritage you are also referring to Marine Archaeology, addressing the full receptor topic in the

scoping report. Or, is Maine Archaeology considered separate and should be scoped in?
This is to ensure there is no misinterpretation from our side and the scoping opinion (response) is accurate.
Please note, your other comments will be passed to the developer and we only require clarification on whether or not HES consider the receptor can be scoped in or out.
Due to the statutory timescales we are constrained to, I would be very grateful if you could respond as soon as possible before Tuesday 5 August.
Many thanks,
Jenny

**Jennifer Goodheir (pronouns she/her)**
**Casework Officer, Marine Directorate - Licencing Operations Team (MD - LOT)**
Scottish Government | 5 Atlantic Quay | 150 Broomielaw | Glasgow | G2 8LU
E: jennifer.goodheir@gov.scot
**The Scottish Government**

HISTORIC ENVIRONMENT SCOTLAND | ÀRAINNEACHD EACHDRAIDHEIL ALBA

**By email to:**
**MS.MarineRenewables@gov.scot**

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

Longmore House
Salisbury Place
Edinburgh
EH9 1SH

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

Our case ID: 300064023
Your ref: SCOP-0026
18 August 2023

Dear Marine Scotland

The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017
SCOP-0026 - Muir Mhór Offshore Wind Farm - Scoping Opinion
Scoping Report

Thank you for your consultation which we received on 11 July 2023 about the above scoping report. We have reviewed the details 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 (HMPAs).

**Proposed Development**
The Scoping report relates to the construction of a 1GW offshore wind farm 63km east of Peterhead extending to about 200km$^2$ in area and comprising 67 turbines, three offshore electrical platforms, cables, and associated infrastructure.

A standalone onshore Scoping report will be forthcoming separately and this Scoping report relates only to the marine elements of the project.

**Our Advice**
We are content with the approach and conclusions of the Scoping report. We welcome that the Scoping report proposes to scope in impacts due to the potential for direct and indirect impacts on marine heritage assets. Although the cable corridor passes through an area with multiple wrecks, the methodology and embedded mitigation proposed in the scoping report are deemed appropriate at this stage. For this reason, we are content for cultural heritage assets within our remit to be scoped out of the EIA assessment. Further information is included in the annex below.

**Further information**

Guidance about national policy can be found in our 'Managing Change in the Historic Environment' series available online at www.historicenvironment.scot/advice-and-support/planning-and-guidance/legislation-and-guidance/managing-change-in-the-historic-environment-guidance-notes. Technical advice is available on our Technical Conservation website at https://conservation.historic-scotland.gov.uk/.
We hope this is helpful. Please contact us if you have any questions about this response. The officer managing this case is Sam Fox and they can be contacted by phone on 0131 668 6890 or by email on samuel.fox@hes.scot.

Yours faithfully

**Historic Environment Scotland**

# Annex

**Background**
HES has had previous involvement with this development. HES attended an early-stage introductory meeting in April 2023 which provided a brief overview of the project and timeline. As plans were still in development, we did not provide advice around specific heritage assets but noted that the applicant should ensure intertidal sites are considered either in the offshore or onshore application process.

**Our Interests & Scoping Report**
We note that there are no known heritage assets in the array area and 62 heritage assets within the wider study area; 39 of which are still 'live' wrecks which have not been salvaged. There are 4 World War II crash sites recorded within the study area, but we note that their locations are approximate.

The Scoping report proposes that marine archaeology and assets be scoped in for assessment due to the potential for direct and indirect impacts on marine heritage assets. This is due to the loss of or damage to known and unknown marine historic environment assets from direct impacts, the loss of or damage to submerged prehistoric landscapes from physical impacts and the indirect disturbance to marine assets caused by cable burial methods and/or cable protection are scoped in during the construction and decommissioning phases of the project (p.293).

The report also notes (p.290-291) that during the operation and maintenance of the windfarm the loss of or damage to known and unknown historic environment assets from direct impacts, the loss of or damage to submerged prehistoric landscapes from direct impacts, and the indirect disturbance to marine historic environment assets caused by additional cable protection during repair and maintenance are all scoped in for assessment (p.293-294). The Scoping report also outlines mitigations including a Marine Written Scheme of Investigation, the implementation of a Protocol for Archaeological Discoveries, scour protection and a decommissioning plan

We are content with the approach and scope of this assessment and we welcome that the the applicant proposes to Scope the above impacts into their assessment. However, we are content that the methodology and embedded mitigation proposed in the scoping report are deemed appropriate at this stage and for other cultural heritage assets within our remit to be scoped out of the EIA report undertaken in support of the offshore elements of the proposals.

We confirm that we are content that impacts on onshore cultural heritage assets within our remit, such as setting impacts by the turbines and infrastructure related to cable landfall sites, will be considered as part of a standalone onshore scoping assessment.

HISTORIC ENVIRONMENT SCOTLAND | ÀRAINNEACHD EACHDRAIDHEIL ALBA

**Historic Environment Scotland**
September 2023

Historic Environment Scotland – Longmore House, Salisbury Place, Edinburgh, EH9 1SH
Scottish Charity No. **SC045925**
VAT No. **GB 221 8680 15**

# Marine Analytical Unit

marinescotland

# Muir Mhòr Offshore Wind Farm

**Marine Analytical Unit Response**

The Muir Mhòr Offshore Wind Farm includes descriptions of a range of potential impacts. This response focuses only on the assessment of social and economic impacts.

We recommend that a full Socio-Economic Impact Assessment be scoped into the Environmental Impact Assessment. We provide general advice on how to deliver this at Annex 1.

## 1. Overview

### *1.1. Onshore impacts*

The MAU welcomes the understanding that offshore developments have onshore socio-economic impacts and looks forward to receiving a supplementary stand-alone economic impact report that will be produced and submitted alongside the EIA (mentioned on page 349, paragraph 17.7.7). The MAU proposes that social impacts resulting from onshore work are also included in the report.

### *1.2. Local study area(s)*

The MAU notes the developer's plan to use Scottish Government's guidance on identifying local study areas, as well as MAU General Advice for Socio-Economic Impact Assessment, and other relevant guidance documents mentioned in the scoping report.

With regards to socio-economic study areas, the MAU notes that the following approach:

- Page 341, paragraph 17.2.3: *"The local socio-economic study area(s) will be defined within the EIAR if more information on the ports that will be used during the construction and operation is known. Based on the principles set out above, it is expected that the local study area(s) could be defined as the local authority area(s) in which the construction and operational ports are located"*
- Page 342, paragraph 17.2.7: *"More local study areas, which are expected to include the electoral wards around the chosen port(s) will be defined when more information is known about the proposed development"*
- Page 349, paragraph 17.7.3: *"The location of where activities occur can be crucial in determining the significance of any effect"*
- Page 349, paragraph 17.7.4: *"At the time of completing the EIA, it is unlikely that the key epicentres, such as ports, will have been selected. […]. For the offshore elements of the proposed development the key epicentres will be the*

*ports used for construction, operations, and decommissioning. It is assumed that at the time of the assessment, it will not be known which port locations will be used, and therefore which communities will be impacted. It will however be possible to consider the potential scale of these impacts and their potential to be significant in different location types, using publicly available data"*

The MAU welcomes transparency on methodological choices involved in the assessment. The inability to identify ports relevant for socio-economic impact assessment is a limitation of analysis. In the absence of this information, the MAU expects to see detailed considerations regarding the scale of potential impacts (e.g., please explicitly suggest an estimate and/or a range of workforce that will be moving into a likely area during the construction stage) and what impacts these might have on most likely ports and local area locations. This analysis needs to be completed at a smaller geographical scale, for the most likely locations affected, in order to understand what the potential impacts could mean for communities living in those areas, and distributional effects of these impacts. It was not clear in the scoping report whether the analysis will be completed on the level of electoral wards, and how the distributional effects are intended to be assessed.

The MAU stresses the importance of employing not only desk-based methods to complete the analysis, but also do social research and collect primary data from communities (in addition to stakeholders representing different organisations and sectors) who are likely to be affected by the development. If the exact location of local study areas is not known, primary research needs to be conducted in most likely location(s). Potential impacts flagged up by experts and communities need to be scoped into the socio-economic assessment in addition to impacts that have already been identified. Consider hiring a social scientist to design a qualitative primary research study with communities to supplement desk-based research. The study can explore potential socio-economic impacts resulting from the development with communities (see advice on potential impact types in the attached Annex). This primary data collection study needs to explore community's responses not only to socio-cultural impacts, but all potential socio-economic impacts.

### *1.3. Magnitude and sensitivity matrix*

In paragraph 17.7.4, the developer states that the magnitude of any impact and the sensitivity of the communities to these impacts is likely to be dependent on the communities in which these impacts occur. Significance methodology is set out in section 4.5 of the scoping report. We would like to note that magnitude and significance methodology is not always adequate for assessing social impacts on communities, as from the macro perspective of national economy and society, these impacts may be seen as affecting only a small group of people. In reality, changes within communities might be quite significant, especially given the potential cumulative effects of the upcoming ScotWind developments. We, therefore, encourage the developer to give careful consideration to methodologies used to assess the significance of social impacts, and to reflect this in their future licensing documents.

### *1.4. Stakeholder engagement and primary data collection*

The MAU appreciates the suggested Stakeholder Engagement Plan (outlined on page 349) that will include a stakeholder mapping and engagement exercise once initial potential impacts have been identified.

The MAU also welcomes the developer's intentions to 'monitor and evaluate the properties of the employment supported specifically by the proposed development' (page 349 of the Scoping Report). The MAU would like to see a more detailed description of what is involved in this work. However, these evaluation and monitoring measures should build on an impact assessment carried out before the development commences (i.e., socio-cultural impacts should not be scoped out).

The report mentions "primary stakeholder engagement". We would like to highlight that stakeholder engagement and primary data collection are different activities with different aims, although could be planned to occur together. We would expect to see the collection of primary social data to provide evidence upon which to base the assessment. We would also expect stakeholder engagement to take place. Stakeholder mapping would be required for both.

With regards to engagement with communities post-consent. It would be very helpful for us to see a description of how these communities will be identified, what methods the developer will use to engage and collect primary research data with communities, what methods will be used to capture communities' concerns, and how primary data collected from communities will be analysed. The MAU encourages the developer to engage trained social scientists with experience in qualitative methods to conduct research and primary data collection with communities to ensure that the social science research methods are designed and executed correctly so that the engagement is delivered in as ethical and meaningful way as possible.

### *1.5. Overview of scoped in and scoped out impacts*

Distributional effects may impact individuals differently from different backgrounds, according to such characteristics as income level, geographical location, gender, age etc. We expect that the assessment will be conducted with local people representing different groups to understand how the development will affect different groups within communities.

The MAU expects that potential impacts flagged up by communities are scoped into the socio-economic assessment in addition to impacts already identified in the scoping report, and adequately assessed.

The MAU welcomes inclusion of housing and local public and private services into the assessment, although clarification regarding data sources used for this assessment is required. It is not clear how data sources identified by the developer will be used to assess potential impacts on housing and local services.

The MAU disagrees with scoping out of socio-cultural impacts, as post-consent engagement and monitoring cannot be seen as a substitute for the impact assessment prior to development commencement.

The MAU welcomes inclusion of commercial fisheries into the socio-economic impact assessment. If there are significant changes to commercial fisheries, we would like to see the assessment of the knock-on socio-economic effects. For example, if there is displacement leading to gear conflict, this could lead to drop in income and tensions within the community.

The MAU broadly agrees with the scoping report's proposed approach for assessing economic impacts.

## 2. Scoping of impacts

### *2.1. Economic impacts*

We broadly agree with the scoping report's proposed approach for assessing economic impacts. It is welcomed that the assessment will include direct, indirect and induced impacts and take account of deadweight, leakage, displacement and substitution. The inclusion of sensitivity analysis to account for risk, uncertainty and optimism bias is also welcomed.

The proposed approach to assess employment impacts in terms of years of employment and jobs seems appropriate. If it is possible to supply additional information about the types of jobs that are expected to be created (e.g. part-time, full-time, skilled) and how these compare to the existing jobs in the study area, this will add further depth to the analysis.

We expect to see a detailed description of the methodology used to assess economic impacts in the EIA, including specific details about the methodological approach taken and any key assumptions that underpin any estimates. This may be supplied in a technical annex if necessary.

### *2.2. Social impacts*

The MAU appreciates the inclusion of commercial fisheries into the socio-economic impact assessment. If there are significant changes to commercial fisheries, we would like to see the assessment of the knock-on socio-economic effects.

The MAU welcomes inclusion of housing and local public and private services into the assessment. However, it is not clear how data sources identified on pages 343-344 will be able to assist with assessment of potential impacts on these spheres. If the developer conducts the assessment of most likely locations, local data sources should be used (e.g., if the number of workers who will settle in Peterhead is known, how would the needs of this workforce impact public services available in Peterhead?).

The MAU disagrees with scoping out of socio-cultural impacts. The MAU welcomed the suggestion to engage with communities after the location of port(s) are known. However, this should not be seen as a substitute for the impact assessment before the development commences. As outlined above, if the location(s) of ports are not

known, the MAU would consider analysis of the most likely location(s) and primary research with communities in these location(s). For example, a desk-based study on impacts on housing can be supplemented with focus groups outlining what these changes to housing mean to community. We would encourage the developer to engage communities with the purpose of not only informing them about the development, but allowing communities to explain what potential changes mean for them. This primary data needs to be collected and analysed by professional social scientists who have qualitative research expertise.

## 3. Conclusions

The MAU broadly agrees with the scoping report's proposed approach for assessing economic impacts. With regards to social impacts, if impacts on local areas are not possible to identify at this stage, we expect the developer to assess these impacts in most likely locations, and include impacts identified by expert stakeholders and communities in the assessment. The MAU disagrees with scoping out of socio-cultural impacts. Most importantly, we would like to encourage the developer to be transparent with regards to their methodological choices (e.g., how data from communities will be collected and analysed). This information will help the MAU understand whether social impacts have been adequately assessed. Please hire a social researcher with qualitative research expertise to collect primary data from communities to understand their responses to potential socio-economic changes resulting from the development.

## Annex 1: General Advice for Socio-Economic Impact Assessment Marine Analytical Unit, December 2022

This document sets out some suggestions for delivering socio-economic impact assessment drawing on the professional expertise of the Marine Analytical Unit.

### Section 1. Some general best practice tips

- Take a proportionate approach to SEIA in line with the size and generating capacity of the development
- Consider offshore and onshore components of the development in the same assessment.
- Employ experts to design and carry out the assessment. The relevant expertise would include:
    - Social research and economist training, qualifications and experience
    - Familiarity and experience with appropriate methods for each discipline (including economic appraisal, social research methods such as surveys, sampling, interviews, focus groups and participatory methods)
- Consider potential secondary socio-economic impacts of any changes the affect the other relevant receptor groups covered in the wider EIA e.g. commercial fisheries, cultural heritage and archaeology and visual impacts.
- Include consideration of the cumulative impact of multiple offshore developments.
- Outline the rationale for scoping out impacts that are deemed to be minimal, including any evidence or analysis that has been used. If this is not provided it can be difficult for MAU to understand why impacts have been scoped out and we may suggest scoping them back in.

### Section 2. Key components of a Socio-economic Impact Assessment

We set out below what we consider to be the key steps to an assessment. We recommend a combined approach so that social and economic impacts are covered together in the assessment, whilst acknowledging that different methodologies for social and economic impacts assessment are needed at certain stages, and that the two disciplines are distinct.

We wish to highlight the importance of stakeholder engagement throughout the assessment, and the use of social research methods to gather primary data and first hand perspectives from particular groups and communities that are affected. These are helpful in order to better understand the nature and degree of impacts that might be caused by changes that are expected occur. A change in itself may or may not bring about tangible impact, impacts may vary for different people or be perceived in different ways, are affected by individual values and attitudes, and conditioned by the context.

Stakeholder engagement and data collection can occur at a number of stages in the SEIA process and may involve similar methodologies but there are important differences to note. The primary aims of stakeholder engagement are to inform, consult or involve key stakeholders, and to communicate information and gather

feedback. Data collection, in contrast is a more rigorous analytical process involving:

- Setting out a planned methodology in advance with clear objectives of what you wish to achieve through data collection
- Sampling strategies that take account of the demographic variations in the population and the need to include difficult to reach groups
- Robust methods to collect information from people in a neutral and unbiased way
- Awareness of how data will be analysed and reported on to obtain and disseminate robust conclusions
- Taking account of research ethics including informed consent, and data protection requirements under GDPR

The stages below are divided into the activities that we suggest are **before** the developer submits a request for a scoping opinion and those that are done **after** the scoping phase. We recommend an iterative approach which means that steps inform each other, information is built up over time, and some steps may be repeated or done in a different order.

The key steps should include:

## Pre-scoping activities

1) **Getting started:** Employ economist and social research experts and work with them to develop a plan for the SEIA that sets out data requirements, and the proposed social and economic data collection and impact assessment methodologies, timescales, any data protection considerations, risk assessment and ethical issues that might arise from the work.

2) Develop a **detailed description** of the planned development and consider the project phases where socio-economic impacts might be experienced (covering development, construction, operation and maintenance and decommissioning phases). Start to map out potential socio-economic impacts and initial consideration of areas of impact on land that will need to be covered.

3) **Initial scoping of impacts:** develop a broad list of potential impacts informed by experts (including social researcher, economist, local representatives from key groups, community stakeholders and others).

**4) Define potential impact areas on land** taking into account locations and connections between activities. Different types of impacts may be experienced at different geographic levels, some in the area nearest the landfall or the nearest coastline to the development at sea, and others much further away (at Scotland level, UK level and internationally). The geographical scale at which social impacts are experienced may be different for social impacts compared with economic impacts. There may be multiple epicentres from which impacts radiate including the site of the development, land-based areas such as landfall and grid connections, construction bases and places from which the development is visible. Activities that take place in the sea are also relevant for defining the impact area on land, for example the location of fishing activity and ports where

fish are landed. The definition of the impact area will inform which communities and which sectors are included in the assessment and vice versa, so this exercise needs to be done iteratively with step 3, the initial scoping of impacts.

5) **Stakeholder mapping** is required to identify all the people, groups and stakeholders who may be affected by the development and is a first step in order to conduct effective stakeholder engagement. This exercise is informed by the definition of the impact area. A broad approach is recommended. Stakeholders are likely to include local communities, businesses, workers, other users of the sea, interest groups, community councils and so on.

   **Steps 4 and 5 may lead to a change in the list of potential impacts so this will need refined/checked.**

6) **Stakeholder engagement (with those affected by the development, sea users, communities etc)** is a key requirement of SEIA that is done at different stages of the process. We recommend doing some initial stakeholder engagement before submitting the scoping report. Stakeholder engagement will fulfil a number of requirements:

   - **Provide information about the development** so that those who might be affected are able to make an informed judgement about potential impacts
   - **Present and refine list of potential impacts based on feedback** - identify impacts that are most relevant and add any additional ones that are identified
   - **Collect initial data/ insights from stakeholders** on what potential socio-economic impacts (to be developed later)
   - **Build relationships** with the community and key groups affected for later stages of the SEIA process so that they can understand the decisions making process and how they can influence it.

   There are many **participatory methodologies** that can be used for effective stakeholder engagement that provide a deliberative space for community discussions.

   This stage may also require the setting up of governance structures and a community liaison officer. **Early engagement** with those who might be affected is very important, as is meaningful and inclusive engagement where people feel that they are being listened to and that their feedback will be acted upon. It is important to set out clearly how stakeholder engagement is being done for the SEIA specifically.

7) **Gather contextual information** to develop a social and economic profile of the area prior to the development that will help with setting the baseline and impact prediction, identifying potential industries and communities that might be affected and sources of data that can be used in the assessment. This might include primary data collection using social research methods (such as surveys,

interviews, focus groups) as well as desk based analysis (of existing data sets such as fishing data, population data).

Primary data collection may occur alongside participatory activities (e.g. engagement events) but must be done in a rigorous and systematic fashion and the findings should be robustly analysed and incorporated into the SEIA. Impacts that are identified for the other receptors in the wider EIA may also have socio-economic consequences and so it may be important to include these in the SEIA.

8) **Produce list of anticipated impacts to be covered in the scoping report** setting out the range of potential impacts that could occur, building on what has already been done using data and insights that have been collected from various activities described above. Details of the methods that have been used should be included to enable Marine Scotland to determine if the analysis is based on a robust and appropriate approach. Justification should be provided for any impacts that are scoped in or out. This could be based on suggestions made by stakeholders and the public during stakeholder engagement or an assessment based on the analysis of primary and secondary data.

   It is helpful if the scoping report includes details on the approach to be used for the SEIA including methods for data collection, planned stakeholder engagement activities and data-sets to be used.

**Post scoping activities for the SEIA**

The scoping opinion will advise on the final list of socio-economic impacts to be assessed in the SEIA. This may require additional data collection/ social research to enable a more rigorous assessment of a narrower set of anticipated impacts. It may also require further stakeholder engagement in order to check the significance of impacts with different groups, and the acceptability of mitigation options.

The data and information that has been collected throughout the scoping phase will be used to conduct steps 9, 10 and 11 below.

9) **Conduct baseline analysis** to assess the situation in the absence of the development, to provide a point of comparison against which to predict and monitor change. Appropriate social and economic measures should be used for the baseline and cover relevant issues (see section 4 for suggested data sources). Key stakeholders and other interested parties including affected communities and sectors may be aware of baseline data to be included, and this can be explored in the participatory approaches described above. The findings from social research can also be included in the baseline. Note that baseline data can be presented in the scoping report but is also the first stage of the SEIA and so should be included in the SEIA report.

10) **Predict impacts and assess their significance (otherwise known as impact appraisal or options appraisal):** Through analysis, estimate the social and economic changes and their expected impacts, considering any alternative development options and how significant the impacts might be. This is the core part of the assessment and forms the main part of the assessment report.

Different methodologies and both primary and secondary data inform this part of the exercise.

Different phases of the development should be covered (development, construction, operation and maintenance) and also transitions between phases (if relevant).

The knock on socio-economic consequences of impacts in other parts of the EIA assessment should be assessed here, such as the impact on commercial fisheries, and impacts on related industries such as tourism could also be included.

It is important to consider distribution of impacts among different social groups (covering protected quality characteristics, socio-economic groups and geographic area where relevant to do so).

Economic impact appraisal should include consideration of:

- Direct, indirect and induced impacts
- Leakage, displacement and substitution effects
- Deadweight
- Cumulative impacts
- Sensitivity analysis to account for risk, uncertainty and optimism bias

There are a range of methodologies for calculating direct, indirect and induced impacts. These include the appropriate use of multipliers, a local content methodology, stakeholder involvement and expert opinion.
Modelling approaches should be realistic, based on robust data, and avoid over promising the economic impacts
All prices should be presented in real terms (excluding inflation) and should state which year the prices represent.

11) **Development enhancement, mitigation strategy and complete SEIA report.**

There may be an opportunity for adaptation or other approaches to mitigate potentially adverse impacts and to maximise positive opportunities. This may include engagement with the community to develop a strategy for enhancing benefits and mitigating against impacts; or development of a Community Benefit Agreement (CBA). Again these activities should be done collaboratively with stakeholders where relevant and appropriate.

The SEIA report should clearly set out the methods used in the assessment, justification for decision made such as scoping certain impacts in or out of the assessment, and the approach to analysis. The report should cover the baseline analysis and results of the impact prediction or appraisal, and distributional impacts . Social and economic impacts can be set out separately (where this makes sense) and together where they overlap.

It is good practice for the report to be reviewed by the people (i.e. the wider group of stakeholders and communities) who were involved in providing data for its production.

## Section 3. Examples of different types of socio-economic impacts

In the literature social and economic impacts are defined in many different ways. Sometimes social and economic impacts are covered separately, whilst other sources refer to socio-economic impacts.

The following table sets out some commonly identified socio-economic impacts.

### Examples of Socio-economic Impacts from Glasson 2017[1]

**1. Direct economic:**

- GVA
- employment, including employment generation and safeguarding of existing employment;
- characteristics of employment (e.g. skill group);
- labour supply and training; and
- other labour market effects, including wage levels and commuting patterns.

**2. Indirect/induced/wider economic/expenditure:**

- employees' retail expenditure (induced);
- linked supply chain to main development (indirect);
- labour market pressures;
- wider multiplier effects;
- effects on existing commercial activities (eg tourism; fisheries);
- effects on development potential of area; and

**3. Demographic:**

- changes in population size; temporary and permanent;
- changes in other population characteristics (e.g. family size, income levels, socio-economic groups); and
- settlement patterns

**4. Housing:**

- various housing tenure types;
- public and private;
- house prices and rent / accommodation costs;
- homelessness and other housing problems; and
- personal and property rights, displacement and resettlement

[1] Glasson J (2017a) "Socio-economic impacts 2: Overview and economic impacts" in Therivel R and Wood G (eds.), Methods of Environmental and Social Impact Assessment, Abingdon: Routledge

**5. Other local services:**

- public and private sector;
- educational services;
- health services; social support;
- others (e.g. police, fire, recreation, transport); and
- local authority finances

**6. Socio-cultural:**

- lifestyles/quality of life;
- gender issues; family structure;
- social problems (e.g. crime, ill-health, deprivation);
- human rights;
- community stress and conflict; integration, cohesion and alienation; and
- community character or image

**7. Distributional effects:**

Distributional analysis is a term used to describe the assessment of the impact of interventions on different groups in society. Interventions may have different effects on individuals according to their characteristics such as income level or geographical location

- effects on specific groups in society (eg: by virtue of gender, age, religion, language, ethnicity and location); environmental justice

## Section 4: Useful Data Sources for Socio-Economic Impact Assessments

| Name | Summary | Link to Source |
|---|---|---|
| Statistics.gov.scot | Contains a wide range of data by local authority and other geographic breakdowns. Has a search by subject and area option. | statistics.gov.scot |
| Marine Economic Statistics, 2019 | Annual economic statistics publication including GVA and employment data for marine economy sectors. | Scotland's Marine Economic Statistics 2019 - gov.scot (www.gov.scot) |
| Scottish Sea Fisheries Statistics, 2021 | Provides data on the tonnage and value of all landings of sea fish and shellfish by Scottish vessels, all landings into Scotland, the rest of the UK and abroad, and the size and structure of the Scottish | Summary - Scottish Sea Fisheries Statistics 2021 - gov.scot (www.gov.scot) |

| | | |
|---|---|---|
| | fishing fleet and employment on Scottish vessels. | |
| Scottish Shellfish Farm Production Survey 2021 | Statistics on employment, production and value of shellfish from Scottish shellfish farms. | Scottish Shellfish Farm Production Survey 2021 - gov.scot (www.gov.scot) |
| Scottish Annual Business Statistics 2020 | Scottish Annual Business Statistics (SABS) presents estimates of employment, turnover, purchases, Gross Value Added and labour costs. Data are provided for businesses that operate in Scotland. Data are classified according to the industry sector, location and ownership of the business. | Scottish Annual Business Statistics 2020 - gov.scot (www.gov.scot) |
| Sub-Scotland Economic Statistics Database | The Sub-Scotland Economic Statistics Database provides economic, business, labour market and population data for Scotland, and areas within Scotland. | Sub-Scotland Economic Statistics Database - gov.scot (www.gov.scot) |
| Nomis Official Labour Market Statistics | Labour market statistics including data on employment, unemployment, qualifications, earnings etc. | Nomis - Official Labour Market Statistics (nomisweb.co.uk) |
| Economics of the UK Fishing Fleet 2020 | Economic estimates at UK, home nation and fleet segment level for the UK fishing fleet. The estimates are calculated based on samples of fishing costs and earnings gathered by Seafish as part of the 2020 Annual Fleet Economic Survey. | Economics of the UK Fishing Fleet 2020 — Seafish |

| | | |
|---|---|---|
| Scotland's Census, National Records of Scotland | Census data that provides information about the characteristics of people and households in the country. | Scotland's Census \| National Records of Scotland (nrscotland.gov.uk) |
| Scottish Index of Multiple Deprivation | Collection of documents relating to the Scottish Index of Multiple Deprivation - a tool for identifying areas with relatively high levels of deprivation. | Scottish Index of Multiple Deprivation 2020 - gov.scot (www.gov.scot) |
| The Green Book | HM Treasury guidance on how to appraise and evaluation policies, projects and programmes. | The Green Book: appraisal and evaluation in central government - GOV.UK (www.gov.uk) |
| The Magenta Book | HM Treasury guidance on evaluation. Chapter 4 provides specific guidance on data collection, data access and data linking. | The Magenta Book - GOV.UK (www.gov.uk) |
| Enabling a Natural Capital Approach (ENCA) | Supplementary guidance to The Green Book. ENCA resources include data, guidance and tools to help understand natural capital and know how to take it into account. | Enabling a Natural Capital Approach (ENCA) - GOV.UK (www.gov.uk) |

**Section 5: Further sources of guidance:**

HM Treasury guidance on how to appraise and evaluate policies, projects and programmes: The Green Book: appraisal and evaluation in central government

Best practice in Social Impact Assessment according to the International Association for Impact Assessment: Social Impact Assessment: Guidance for Assessing and Managing the Social Impacts of Projects

The project A two way Conversation with the People of Scotland on the Social Impacts of Offshore Renewables (CORR/5536) has developed elements of a conceptual framework on social values that can be used to support and inform existing processes for assessing the potential social impacts of offshore renewables plans: Offshore renewables - social impact: two way conversation with the people of Scotland

Best practice guidance for assessing the socio-economic impacts of OWF developments: Guidance on assessing the socio-economic impacts of offshore wind farms (OWFs)

# Maritime & Coastguard Agency

Vinu John
**Maritime and Coastguard Agency**
UK Technical Services Navigation

www.gov.uk/mca
08 August 2023

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

Our ref: SCOP0026

Dear Sir/Madam

**REGULATION 14 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017**
**REGULATION 12 OF THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017**
**REGULATION 13 AND SCHEDULE 4 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007**

**Scoping Opinion Consultation Response: Muir Mhor Offshore Windfarm .**

Thank you for the opportunity to comment on the Scoping Report for the Muir Mhor offshore wind farm submitted by Muir Mhor Wind Limited. The MCA has reviewed the report, as detailed in your email dated 11th July 2023. The MCA's remit for offshore renewable energy development is to ensure that safety of navigation is preserved whilst progress is made towards government targets for renewable energy.

The EIA Report should supply detail on the possible impact on navigational issues for both commercial and recreational craft, specifically:

- Collision Risk
- Navigational Safety
- Visual intrusion and noise
- Risk Management and Emergency response
- Marking and lighting of site and information to mariners
- Effect on small craft navigational and communication equipment
- The risk to drifting recreational craft in adverse weather or tidal conditions.
- The likely squeeze of small craft into the routes of larger commercial vessels.

A Navigational Risk Assessment (NRA) will need to be submitted in accordance with MGN and the MCA's Methodology for Assessing the Marine Navigation Safety & Emergency Response Risks of Offshore Renewable Energy Installations (OREI). This NRA should be accompanied by a detailed MGN 654 Checklist which can be downloaded from the MCA website at https://www.gov.uk/guidance/offshore-renewable-energy-installations-impact-on-shipping

We note, from section 13.3 and 13.10 of the scoping report that the project intends to carry out a vessel traffic survey to the standard of MGN 654 i.e. at least 28 days which is to include seasonal data (two x 14-day surveys). We would suggest this should be from a vessel-based survey using AIS, radar and visual observations to capture all vessels navigating in the study area.

The turbine layout design will require MCA approval prior to construction to minimise the risks to surface vessels, including rescue boats, and Search and Rescue aircraft operating within the site. Any additional navigation safety and/or Search and Rescue requirements, as per MGN 654 Annex 5, will be agreed at the approval stage.

Attention should be paid to cabling routes and where appropriate burial depth for which a Burial Protection Index study should be completed and subject to the traffic volumes, an anchor penetration study may be necessary. If cable protection measures are required e.g. rock bags or concrete mattresses, the MCA would be willing to accept a 5% reduction in surrounding depths referenced to Chart Datum. This will be particularly relevant where depths are decreasing towards shore and potential impacts on navigable water increase, such as at the HDD location.

It is to be noted that regulatory mooring expectations should be identified as a potential mitigation and MCA can confirm this guidance should be followed and that a Third-Party Verification of the mooring arrangements will be required.

Particular consideration will need to be given to the implications of the site size and location on SAR resources and Emergency Response Co-operation Plans (ERCoP). 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. A SAR checklist will also need to be completed in consultation with MCA.

It is noted that HVDC transmission infrastructure maybe installed therefore consideration must be given to electromagnetic deviation on ships' compasses. The MCA would be willing to accept a three-degree deviation for 95% of the cable route. For the remaining 5% of the cable route no more than five degrees will be attained. The MCA would however expect a deviation survey post the cable being laid; this will confirm conformity with the consent condition.

MGN 654 Annex 4 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. Failure to report the survey or conduct it to Order 1a might invalidate the Navigational Risk Assessment if it was deemed not fit for purpose.

Considering all the potential developments in the area, MCA is concerned regarding the general loss of navigable sea room and we would request the applicant to factor in cumulative impacts into their NRA and for this assessment the applicant should consider all the projects in the vicinity specially the likes of Bellrock, Morven, Ossian and Campion.

On the understanding that the Shipping and Navigation aspects are undertaken in accordance with MGN 654 and its annexes, along with a completed MGN checklist, MCA is likely to be content with the approach. As this project progress, we would welcome engagement with the developers, and early discussion on the points raised above. However, we note that, there are multiple reference to

MGN 543- SAR Annex 5 whereas this is now MGN-654 Annex 5 (published in Nov 2021 and due for a review in Nov-2023).

Paragraph 13.11 asks some scoping questions to which our responses are as follows:

- Do you agree with the study areas defined in section 13.2 for shipping and navigation?
  Yes, we agree with the 10Nm study area mentioned in Section 13.2 of the Scoping report.
- Do you agree with the use of those data listed in section 13.3 and the additional anticipated data listed in Section 13.19 for informing the EIA/ NRA?
  Yes, we agree with the use of the data listed in Section 13.3 and the additional data in Section 13.10 which includes the 14-day summer AIS, Radar, visual vessel traffic survey.
- Are there any additional data sources or guidance documents that should be considered?
  We note that all standard guidance documents are included within the scoping report. However, we note that MGN 543- SAR Annex 5 whereas this is now MGN-654 Annex 5 (published in Nov 2021 and due for a review in Nov-2023).
- Do you agree with the impacts scoped in for shipping and navigation and in particular those relating to use of floating technology?
  Yes, we agree with the impacts scoped In as part of the shipping and navigation and the floating technology.
- Do you agree the embedded commitments are appropriate, or are there other measures that should be included?
  Yes, we agree with the embedded commitment measure specified in Table 13-2, we believe all the commitments are covered here, and if any bespoke commitments are required those will be agreed at the application stage.
- Do you agree with the assessment of the potential transboundary effects in relation to shipping and navigation?
  Yes.
- Do you agree with the assessment of the proposed approach to the cumulative effects in relation to shipping and navigation?
  Yes, the cumulative impacts assessment should include other windfarms in planning stage which have submitted their scoping report. Specially, projects like Campion, Bellrock, Ossian and Morven.
- Do you agree with the proposed assessment methodology for shipping and navigation?
  Yes, we agree with the proposed assessment methodology, in addition please consider the points raised in the above paragraphs.
- Are there any additional shipping and navigation organisations that you would recommend be consulted?
  No, we are content with the list of stakeholders identified within Table 5-1.

Yours faithfully,
[redacted]

Vinu John
Navigation Policy Advisor

# Marine Directorate's Science Evidence, Data and Digital unit (MD-SEDD)

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**9 August 2023**

**MUIR MHÒR OFFSHORE WIND FARM - REQUEST FOR SCOPING OPINION**

Marine Directorate advisers have reviewed the request from MD-LOT and provide the following advice.

## Commercial fisheries

Study area

MD-SEDD are content with the proposed study area, including the local study area and the wider area that will be considered for fisheries displacement in the Environmental Impact Assessment (EIA).

Data

MD-SEDD note that only the 2020 VMS data from the MMO has been used for scoping but it is stated that longer term analysis will be used in the EIA.

MD-SEDD has recently published Heat Maps of fishing data (2017-2021) for under 12 metre boats. The layers are on Marine Scotland Maps and downloadable via Spatialdata.gov.scot. The layers can also be accessed from the links at the bottom of this page: Fishing - Activity data and statistics | Marine Scotland Information. MD-SEDD advise that this data is used in the EIA as it is more current than the ScotMap data used.

Impact pathways

MD-SEDD are content with the impact pathways identified for the construction, operation and decommissioning phases of the development. However MD-SEDD advise that the EIA also considers the possibility of permanent exclusion during the operation of the floating wind farm to some types of

fisheries such as those using mobile gear due to the potential safety risks of snagging gear on subsea infrastructure associated with floating wind.

Commitment measures

MD-SEDD note that the developer has committed to undertaking over-trawl surveys across export cables where mechanical protection of cables laid on seabed has been deployed.

Assessment methodology

MD-SEDD advise undertaking a fisheries displacement assessment and referring to the 'Good practice guidance for assessing fisheries displacement by other licensed marine activities' (Xodus, 2022).

Approach to cumulative effects

MD-SEDD advise that the CIA takes into account other wind farm areas, in particular floating wind farms where some types of fishing may be restricted and also any Marine Protected Areas and other protected areas with fisheries management measures in place.

Yours sincerely,

**Renewable Energy Environmental Advice group**

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**21 September 2023**

**SCOPING OPINION OF MUIR MHÒR OFFSHORE WIND FARM**

Marine Directorate scientific advisers have reviewed the request from MD-LOT and provide the following advice.

**Physical environment / coastal processes**

- Do you agree with the study area(s) defined in Section 6.2 for marine and coastal processes?
  The proposed study area is suitable as long as the areas shown in Figure 6.1 are extended by at least 1 tidal excursion.

- Do you agree with the use of those data listed in Section 6.3, and any additional anticipated data listed in Section 6.10, being used to inform the Offshore EIA? Are there any additional data sources or guidance documents that should be considered?
  Additional baseline data to describe the water column structure, i.e. temperature profiles and seasonal/intermittent stratification, should be included. This could include observational data if available (e.g. from BODC, ICES, Copernicus marine) and model reanalysis/hindcast (e.g. North West European Shelf Seas model data from Copernicus Marine, Scottish Shelf Waters Reanalysis Service).

The baseline description should include details of stratification including what the water column structure is like through the year (e.g. seasonal temperature, salinity, density profiles) and when typically the region stratifies, and how key parameters change through the year (e.g. surface mixed layer depth and potential energy anomaly). The strength of stratification should be noted, as well as what additional mixing would be required to alter the timing and extent of stratification. Typical frontal positions in the region should also be noted. The link between stratification and fronts to primary productivity and higher trophic levels and ecosystem services should be noted.

- Do you agree that all pathways, receptors, and potential impacts related to marine and coastal processes have been identified?
  Yes

- Do you agree with the scoping in and out of impact pathways in relation to marine and coastal processes?
  Modifications to stratification and frontal features should be scoped in. A wind farm could change water column mixing, by the structures generating turbulent wakes, and/or by altering the near sea surface wind speeds (Christiansen et al. 2022, Durrell et al. 2022). This could have an important impact in regions of stratification, such as this proposed wind farm, and could alter the extent and timing of seasonal stratification.

- Do you agree with the assessment of the potential for transboundary effects in relation to marine and coastal processes?
  Yes

- Do you agree with the proposed approach to cumulative effects in relation to marine and coastal processes?
  Yes

- Do you agree with the proposed assessment methodology for marine and coastal processes?
  The proposed assessment methodology is considered to be appropriate for the processes currently proposed to be scoped in. Additional methods may be required to assess potential modifications to stratification and frontal features. Qualitatively considering how the wind farm could alter these processes may be a pragmatic/proportional approach as

long as sufficient evidence is provided, e.g. good baseline description, using data from 3D hydrodynamics models, and citing research evidence. If there are uncertainties as to how the wind farm may change stratification then 3D hydrodynamic modelling may be required.

Yours sincerely,

**Renewables and Ecology Team**
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**21 September 2023**

**SCOPING OPINION OF MUIR MHÒR OFFSHORE WIND FARM**

Marine Directorate scientific advisers have reviewed the request from MD-LOT and provide the following advice.

**Physical environment / coastal processes**

- Do you agree with the study area(s) defined in Section 6.2 for marine and coastal processes?
  The proposed study area is suitable as long as the areas shown in Figure 6.1 are extended by at least 1 tidal excursion.

- Do you agree with the use of those data listed in Section 6.3, and any additional anticipated data listed in Section 6.10, being used to inform the Offshore EIA? Are there any additional data sources or guidance documents that should be considered?
  Additional baseline data to describe the water column structure, i.e. temperature profiles and seasonal/intermittent stratification, should be included. This could include observational data if available (e.g. from BODC, ICES, Copernicus marine) and model reanalysis/hindcast (e.g. North West European Shelf Seas model data from Copernicus Marine, Scottish Shelf Waters Reanalysis Service).

The baseline description should include details of stratification including what the water column structure is like through the year (e.g. seasonal temperature, salinity, density profiles) and when typically the region stratifies, and how key parameters change through the year (e.g. surface mixed layer depth and potential energy anomaly). The strength of stratification should be noted, as well as what additional mixing would be required to alter the timing and extent of stratification. Typical frontal positions in the region should also be noted. The link between stratification and fronts to primary productivity and higher trophic levels and ecosystem services should be noted.

- Do you agree that all pathways, receptors, and potential impacts related to marine and coastal processes have been identified?
  Yes

- Do you agree with the scoping in and out of impact pathways in relation to marine and coastal processes?
  Modifications to stratification and frontal features should be scoped in. A wind farm could change water column mixing, by the structures generating turbulent wakes, and/or by altering the near sea surface wind speeds (Christiansen et al. 2022, Durrell et al. 2022). This could have an important impact in regions of stratification, such as this proposed wind farm, and could alter the extent and timing of seasonal stratification.

- Do you agree with the assessment of the potential for transboundary effects in relation to marine and coastal processes?
  Yes

- Do you agree with the proposed approach to cumulative effects in relation to marine and coastal processes?
  Yes

- Do you agree with the proposed assessment methodology for marine and coastal processes?
  The proposed assessment methodology is considered to be appropriate for the processes currently proposed to be scoped in. Additional methods may be required to assess potential modifications to stratification and frontal features. Qualitatively considering how the wind farm could alter these processes may be a pragmatic/proportional approach as

long as sufficient evidence is provided, e.g. good baseline description, using data from 3D hydrodynamics models, and citing research evidence. If there are uncertainties as to how the wind farm may change stratification then 3D hydrodynamic modelling may be required.

Yours sincerely,

**Renewables and Ecology Team**
Marine Directorate – Science, Evidence, Data and Digital

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# Defence Infrastructure Organisation (MOD)

Defence Infrastructure Organisation

Teena Oulaghan
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Your Ref: SCOP-0026
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Jennifer Goodheir
Casework Officer, Marine Directorate
Licencing Operations Team (MD - LOT)
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G2 8LU

13 September 2023

Dear Jennifer,

**REQUEST FOR SCOPING OPINION FOR PROPOSED SECTION 36 APPLICATION AND MARINE LICENCES FOR THE MUIR MHÒR OFFSHORE WIND FARM LOCATED APPROXIMATELY 63KM EAST OFF THE COAST OF PETERHEAD**

**REGULATION 14 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017. REGULATION 12 OF THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017. REGULATION 13 AND SCHEDULE 4 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007.**

Thank you for consulting the Ministry of Defence (MOD) in advance of an application for the construction and operation of the Muir Mhor Offshore Wind Farm. Consultation correspondence was received by this office on 11 July 2023.

The Defence Infrastructure Organisation (DIO) Safeguarding Team represents the Ministry of Defence (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 provide the MOD safeguarding position on information provided in the Scoping Report.

It is acknowledged that the final design of this project has not yet been determined and that an indicative design envelope has been provided. Chapter 3 of the scoping report provides a description of the project, stating that the project could be made of up to 67 turbines, 345m to tip height above Mean Sea Level (MSL).

## Air Defence Radar

Chapter 15 *Military and Civil Aviation* covers Military Aviation. Paragraph 15.4.16 references the MOD's Air Defence (AD) Radars.

Wind turbines have been shown to have detrimental effects on the operation of AD radar. These include the desensitisation of the radar in the vicinity of wind turbines, and the creation of "false" aircraft returns. The probability of the radar detecting aircraft flying over or in the locality 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 manage aircraft in United Kingdom sovereign airspace, thereby preventing it from effectively performing its primary function of Air Defence of the United Kingdom.

Within paragraph 15.4.16 of Chapter 15, it is stated that the nearest military air defence radar is located at Remote Radio Head (RRH) Buchan which is approximately 66km from the array.

The MOD has undertaken an assessment based on 67 wind turbines at 345m to tip height using the Rochdale Envelope boundary co-ordinates. Turbines within the array area will be detectable to the AD Radar at RRH Buchan. The impact of the turbines on the AD radar at RRH Buchan will therefore need to be addressed through a suitable technical mitigation solution. It is the applicant's responsibility to provide a suitable technical mitigation solution to the MOD.

Mitigation to address the impact of the development on the AD Radar is considered in Table 15.3. It is stated that engagement with the MOD will continue throughout the application process, this is welcomed.

## Air Traffic Control

Chapter 15 *Military and Civil Aviation* covers Military Aviation. Paragraph 15.4.15 references the MOD's Air Traffic Control (ATC) Radars.

This paragraph acknowledges there are no MOD Air Traffic Control (ATC) radars active or in use within the study area, the MOD agree with this based on the information available at this stage. Any variations to the number or height of the turbines proposed may change this position, however in its current form the MOD have no concerns.

## Danger Areas

Chapter 15 *Military and Civil Aviation* identifies nearby danger areas and airspace, and states that the Muir Mhor Offshore Windfarm sits beneath Danger Area EG D613A which has vertical limits approximately 10,000ft above mean sea level (AMSL) and includes Ordnance, munitions, and explosives and high energy manoeuvres. The MOD has completed an assessment and can confirm we have no concerns.

## Military Low Flying

The potential for the development to create physical obstructions to military low flying activities is acknowledged within Chapter 15 *Military and Civil Aviation,* Table 15.3 identifies potential effects on military aviation. The developer has scoped this in, and the MOD agrees. The MOD would request that the development be fitted with MOD accredited aviation safety lighting. As a minimum the MOD would require that each of the turbines are fitted with 25cd visible and/or infra-red (IR) lighting.

The MOD will request that a Requirement is added to any Development Consent Order that might be issued requiring the submission of information such as commencement dates, maximum turbine heights and the longitude and latitude of each wind turbine. This information is required to allow accurate charting of the development.

**Unexploded Ordnance (UXO)**

The potential for unexploded ordnance (UXO) to be present within the development area and the necessity for clearance should be considered. The potential presence of UXO and disposal sites should be a consideration during the installation and decommissioning of turbines, cables, and any other infrastructure, or where other intrusive works are necessary.

**Highly Surveyed Routes**

The MOD has highly surveyed routes within the locality of the development area which maybe relevant to the installation of wind turbines, export cables & associated infrastructure. These routes are retained by the MOD to support national defence requirements and are not defined in the public domain. Highly surveyed routes must not be obstructed or impeded by offshore developments such as wind turbines. At this time, we are unable to advise if the development will impede any highly surveyed routes in the area. An assessment to determine any impact has been requested and we will share the results with you as soon as we are able to.

**Landfall and Onshore**

The export cable route corridor, shown on various maps and plans throughout the Scoping Report document, shows potential locations of where the export cable could make landfall. Details of the onshore area of interest has not been provided within the Scoping Report. A statutory safeguarding zone surrounding the AD radar at RAF Buchan extends over potential landfall locations for the export cable and potentially the onshore area of interest. Within this zone, the MOD needs to check the heights of developments to ensure developments do not cause a physical obstruction to the performance of the radar. As the proposal matures, the MOD should be consulted on the onshore element of the project, so any impact on RAF Buchan can be identified.

I trust this is clear however should you have any questions please do not hesitate to contact me.

Yours sincerely

*T Oulaghan*

Teena Oulaghan (Safeguarding Manager)

# Morven Offshore Windfarm

| | |
|---|---|
| **From:** | Ridyard, Victoria |
| **To:** | MS Marine Renewables |
| **Cc:** | Jennifer Goodheir |
| **Subject:** | RE: SCOP-0026 - Muir Mhór Offshore Wind Farm - Consultation request for Scoping Opinion - Response Required by 10 August 2023 |
| **Date:** | 22 August 2023 13:34:48 |
| **Attachments:** | image001.png<br>image004.png |

Thank you Jennifer, we had no comment to make.

Kind regards
Vic


**Victoria Ridyard**

Morven Consent Lead
Mobile: [redacted] | email: victoria.ridyard@bp.com


# National Air Traffic Services (NATS)

| | |
|---|---|
| **From:** | NATS Safeguarding |
| **To:** | MS Marine Renewables |
| **Cc:** | NATS Safeguarding |
| **Subject:** | RE: SCOP-0026 - Muir Mhór Offshore Wind Farm - Consultation on Request for Scoping Opinion - Response Required by 10 August 2023 |
| **Date:** | 20 July 2023 10:51:12 |
| **Attachments:** | image003.png<br>image004.png<br>image005.png<br>image007.png<br>image008.png<br>image009.png<br>image010.png<br>image001.png<br>SG35754 TOPA - Issue 1.pdf |

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We refer to the application above. The proposed development has been examined by our technical safeguarding teams and conflicts with our safeguarding criteria.

Accordingly, NATS (En Route) plc objects to the proposal. The reasons for NATS?s objection are outlined in the attached report TOPA SG35754

We would like to take this opportunity to draw your attention to the legal obligation of local authorities to consult NATS before granting planning permission for a wind farm. The obligation to consult arises in respect of certain applications that would affect a technical site operated by or on behalf of NATS (such sites being identified by safeguarding plans that are issued to local planning authorities).

In the event that any recommendations made by NATS are not accepted, local authorities are obliged to follow the relevant directions within Planning Circular 2 2003 - Scottish Planning Series: Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) (Scotland) Direction 2003 or Annex 1 - The Town And Country Planning (Safeguarded Aerodromes, Technical Sites And Military Explosives Storage Areas) Direction 2002.

These directions require that the planning authority notify both NATS and the Civil Aviation Authority (? CAA?) of their intention. As this further notification is intended to allow the CAA to consider whether further scrutiny is required, the notification should be provided prior to any granting of permission.

It should also be noted that the failure to consult NATS, or to take into account NATS?s comments when determining a planning application, could cause serious safety risks for air traffic.

Should you have any queries please contact us using the details below.

Yours Faithfully

NATS Safeguarding

D: [redacted]
E: natssafeguarding@nats.co.uk

4000 Parkway, Whiteley,
Fareham, Hants PO15 7FL
www.nats.co.uk

Prepared by:
NATS Safeguarding Office

Unmarked

# Technical and Operational Assessment (TOPA)

## Muir Mhór Offshore Wind Farm

## NATS ref: SG35754

*Issue 1*

Contents

## Notice

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## Publication History

| Issue | Month/Year | Change Requests and summary |
|---|---|---|
| 1 | July 2023 | |
| | | |

## Document Use

External use: Yes

## Referenced Documents

# 1. Background

## 1.1. En-route Consultation

NATS en-route plc is responsible for the safe and expeditious movement in the en-route phase of flight for aircraft operating in controlled airspace in the UK. To undertake this responsibility it has a comprehensive infrastructure of RADAR's, communication systems and navigational aids throughout the UK, all of which could be compromised by the establishment of a wind farm.

In this respect NATS is responsible for safeguarding this infrastructure to ensure its integrity to provide the required services to Air Traffic Control (ATC).

In order to discharge this responsibility NATS is a statutory consultee for all wind farm applications, and as such assesses the potential impact of every proposed development in the UK.

The technical assessment sections of this document define the assessments carried out against the development proposed in section 3.

# 2. Scope

This report provides NATS En-Route plc's view on the proposed application in respect of the impact upon its own operations and in respect of the application details contained within this report.

Where an impact is also anticipated on users of a shared asset (e.g. a NATS RADAR used by airports or other customers), additional relevant information may be included for information only. While an endeavour is made to give an insight in respect of any impact on other aviation stakeholders, it should be noted that this is outside of NATS' statutory obligations and that any engagement in respect of planning objections or mitigation should be had with the relevant stakeholder, although NATS as the asset owner may assist where possible.

# 3. Application Details

The Scottish Government submitted a request for a NATS technical and operational assessment (TOPA) for the Muir Mhór Offshore Wind Farm. It will be contained within an area as detailed in Table 1 and shown in the diagrams contained in Appendix B.

| Boundary Point | Lat | Lon |
|---|---|---|
| A | 57.35055 | -0.42473 |
| B | 57.35199 | -0.56277 |
| C | 57.38239 | -0.6833 |
| D | 57.48393 | -0.71843 |
| E | 57.47626 | -0.47377 |

Table 1 – Development Details

The turbines being proposed are up to a maximum of 340m to tip.

# 4. Assessments Required

The proposed development falls within the assessment area of the following systems:

| RADAR | Lat | Long | nm | km | Az (deg) | Type |
|---|---|---|---|---|---|---|
| Alanshill Radar | 57.6431 | -2.1655 | 46.0 | 85.3 | 105.9 | CMB |
| Perwinnes Radar | 57.2123 | -2.1309 | 46.3 | 85.7 | 82.0 | CMB |
| Nav | Lat | Long | nm | km | Az (deg) | Type |
| None | | | | | | |
| AGA | Lat | Long | nm | km | Az (deg) | Type |
| None | | | | | | |

Table 2 – Impacted Infrastructure

## 4.1. En-route RADAR Technical Assessment

### 4.1.1. Predicted Impact on Allanshill RADAR

Using the theory as described in Appendix A and development specific propagation profile it has been determined that the portion of the development that lies within 60nm of the radar is likely to consistently cause false primary plots to be generated. A reduction in the RADAR's probability of detection, for real aircraft, is also anticipated.

### 4.1.2. Predicted Impact on Perwinnes RADAR

Using the theory as described in Appendix A and development specific propagation profile it has been determined that the development is likely to cause false primary plots to be generated. A reduction in the RADAR's probability of detection, for real aircraft, is also anticipated.

## 4.2. En-route Navigational Aid Assessment

### 4.2.1. Predicted Impact on Navigation Aids

No impact is anticipated on NATS' navigation aids.

## 4.3. En-route Radio Communication Assessment

### 4.3.1. Predicted Impact on the Radio Communications Infrastructure

No impact is anticipated on NATS' radio communications infrastructure.

## 4.4. Operational Assessment

### 4.4.1. Aberdeen Offshore

This is windfarm is contained within the Aberdeen Offshore (HELS) sector and positioned below the North Sea Helicopter track structure. The design of this zone results in the area being overflown by several tracks, with some of these being the most frequently used Aberdeen-based routes serving installations such as Forties, Montrose and Elgin.

Helicopter pilots typically require 1000ft vertical separation from en-route obstacles. Pilots may elect to operate at an altitude high enough to provide suitable obstacle clearance but this may not always be possible restricting the tracks that are available and requiring a routing around the windfarm

The above means that this development is likely to have a 'High' operational impact and would therefore be **unacceptable** without further mitigation.

### 4.4.2. Prestwick Centre

Without further mitigation the scale of the area affected by the predicted clutter would lead to an **unacceptable** impact on the en-route air traffic operation at Prestwick Centre.

# 5. Conclusions

The proposed development has been examined by technical and operational safeguarding teams. A technical impact is anticipated, this has been deemed to be **unacceptable** without further work to identify and develop mitigation options.

# Appendix A – Background RADAR Theory

## Primary RADAR False Plots

When RADAR transmits a pulse of energy with a power of $P_t$ the power density, P, at a range of r is given by the equation:

$$P = \frac{G_t P_t}{4\pi r^2}$$

*Where $G_t$ is the gain of the RADAR's antenna in the direction in question.*

If an object at this point in space has a RADAR cross section of σ, this can be treated as if the object re-radiates the pulse with a gain of σ and therefore the power density of the reflected signal at the RADAR is given by the equation:

$$P_a = \frac{\sigma P}{4\pi r^2} = \frac{\sigma G_t P_t}{(4\pi)^2 r^4}$$

The RADAR's ability to collect this power and feed it to its receiver is a function of its antenna's effective area, $A_e$, and is given by the equation:

$$P_r = P_a A_e = \frac{P_a G_r \lambda^2}{4\pi} = \frac{\sigma G_t G_r \lambda^2 P_t}{(4\pi)^3 r^4}$$

*Where $G_t$ is the RADAR antenna's receive gain in the direction of the object and λ is the RADAR's wavelength.*

In a real world environment this equation must be augmented to include losses due to a variety of factors both internal to the RADAR system as well as external losses due to terrain and atmospheric absorption.

*For simplicity these losses are generally combined in a single variable L.*

$$P_r = \frac{\sigma G_t G_r \lambda^2 P_t}{(4\pi)^3 r^4 L}$$

## Secondary RADAR Reflections

When modelling the impact on SSR the probability that an indirect signal reflected from a wind turbine has the signal strength to be confused for a real interrogation or reply can determined from a similar equation:

$$P_r = \frac{\sigma G_t G_r \lambda^2 P_t}{(4\pi)^3 r_t^2 r_r^2 L}$$

Where $r_t$ and $r_r$ are the range from RADAR-to-turbine and turbine-to-aircraft respectively. This equation can be rearranged to give the radius from the turbine within which an aircraft must be for reflections to become a problem.

$$r_r = \sqrt{\frac{\lambda^2}{(4\pi)^3}} \sqrt{\frac{\sigma G_t G_r P_t}{r_t^2 P_r L}}$$

## Shadowing

When turbines lie directly between a RADAR and an aircraft not only do they have the potential to absorb or deflect, enough power such that the signal is of insufficient level to be detected on arrival.

It is also possible that azimuth determination, whether this done via sliding window or monopulse, can be distorted giving rise to inaccurate position reporting.

## Terrain and Propagation Modelling

All terrain and propagation modelling is carried out by a software tool called ICS Telecom (version 11.1.7). All calculations of propagation losses are carried out with ICS Telecom configured to use the ITU-R 526 propagation model.

# Appendix B – Diagrams

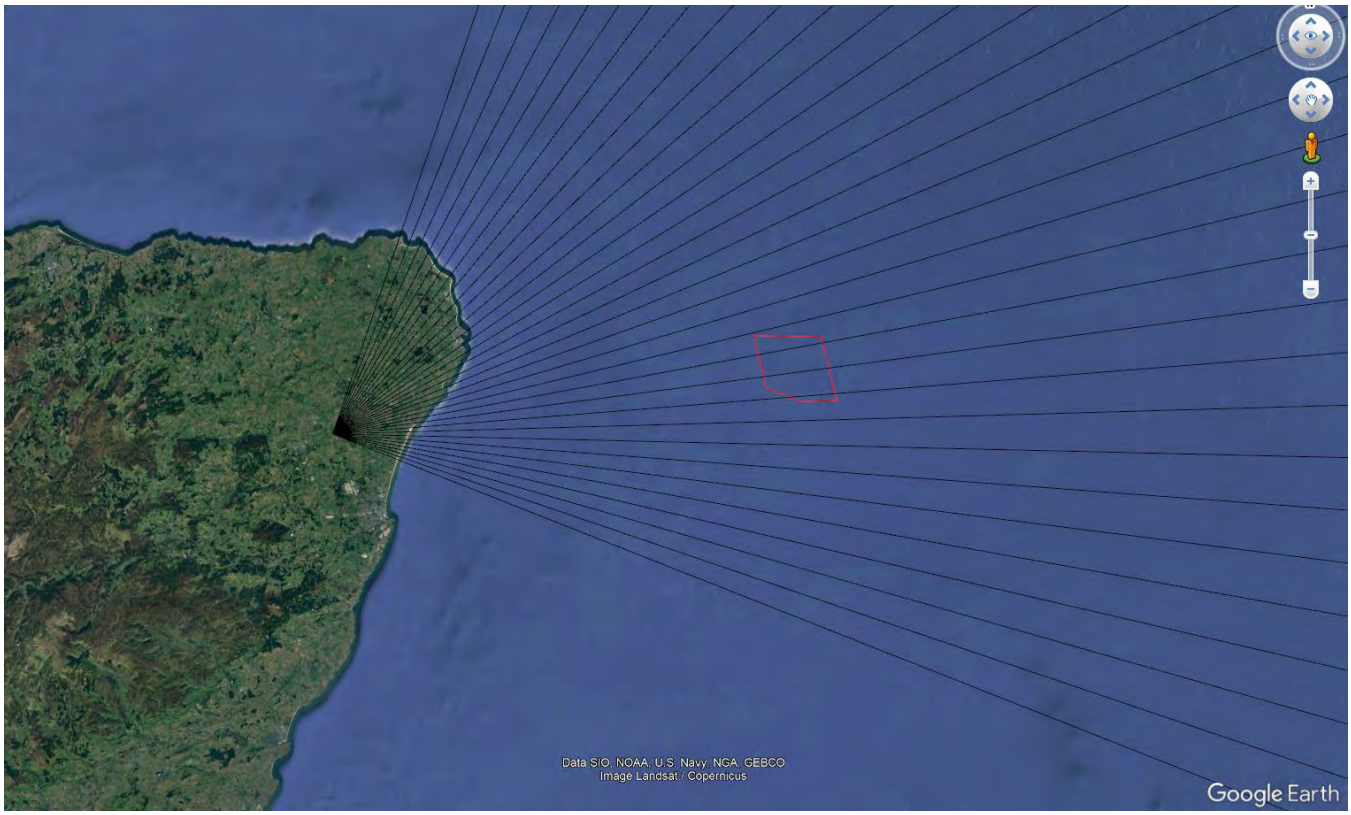


Figure 1 – Development shown with Helicopter Main Routes overlaid

# Natural England

Date: 09 August 2023
Our ref: 441641

Scottish Government
Marine Scotland
5 Atlantic Quay
150 Broomielaw
Glasgow
G2 8LU

Natural England
Lancaster House
Hampshire Court
Newcastle Upon
Tyne NE4 7YH
T 0300 060 3900

**BY EMAIL ONLY**

Dear Emma,

**Muir Mhor Offshore Wind Ltd – Section 36 Consent and Marine Licences – Muir Mhor Offshore Windfarm, East of Peterhead**

Thank you for your consultation which we received on the 12th July 2023 consulting Natural England on the Muir Mhor Floating windfarm. We have reviewed the Offshore Habitats Regulations Appraisal (HRA) Screening Report.

The following constitutes Natural England's formal statutory response. This is without prejudice to any comments we may wish to make considering further submissions or on the presentation of additional information.

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

As the application is located outside English waters, advice from NatureScot and JNCC, the statutory nature conservation bodies for Scottish waters, should be sought.

Due to our remit, we have restricted our comments to impacts to species from English Marine Protected Areas and to species in English waters: marine mammals, fish and birds.

In summary, Natural England agree with the conclusions of the HRA screening with respect to English species.

We note that Natural England's advice on ornithological modelling differs from NatureScot's advice. Although for the Muir Mhor project we advise that we agree with the conclusions of the screening (for English protected sites and species), we are mindful of these differences and want to highlight them here. The increasing number of offshore wind projects could lead to adverse effect on English and Scottish birds in combination with other plans or projects in the future. Although Natural England do not agree fully with the methods in the impact assessment, we do not expect the applicant to undertake a separate impact assessment based on Natural England's advice.

For any queries relating to the content of this letter please contact me using the details provided below. Any further consultations on this or other projects, should be forwarded to consultations@naturalengland.org.uk.

Jay Endean
Marine Lead Adviser
Northumbria Area Team
Natural England
Jayden.endean@naturalengland.org.uk

# NatureScot

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

Emma Lees
Marine Licensing and Consenting Officer
Marine Directorate - Licensing Operations Team
Scottish Government - Marine Laboratory
Aberdeen
AB11 9DB

11 August 2023

Our ref: CNS / REN / OSWF / E2 - Muir Mhor - Pre application

By email only: ms.marinerenewables@gov.scot

Dear Emma,

**Muir Mhór Offshore Wind Farm – ScotWind E2 West**

**NatureScot advice on the Environmental Impact Assessment (EIA) Scoping Report and Habitats Regulations Appraisal (HRA) Stage 1 Likely Significant Effects (LSE) Screening Report**

Thank you for consulting NatureScot on the EIA Scoping Report and HRA Stage 1 LSE Screening Report submitted by Muir Mhór Offshore Wind Farm Limited for the Muir Mhór offshore wind farm array and export cable corridor.

Our advice on the natural heritage interests to be addressed within the Environmental Impact Assessment Report (EIA Report) and HRA is outlined below. Please note that the advice contained in this letter is in relation to the offshore components (seawards of MHWS) only.

**Policy context**

We are currently facing two crises, that of climate change and biodiversity loss and as the Scottish Government's adviser on nature, our work seeks to inspire, enthuse and influence others to manage our natural resources sustainably. We recognise that this proposal is a lease awarded through the ScotWind process in an area identified through the Sectoral Marine Plan process for Offshore Wind.

**Proposal**

The proposal uses a project design envelope approach[1]. We note the board nature of the current envelop such that the proposal comprises:

- Up to 67 floating wind turbine generators (WTGs) with a generating capacity of up to 1 GW.
- WTG foundations being considered are semi-submersible, barge, tension leg platform (TLP), spar, multi-tower semi-submersible, buoy and semi-spar.
- Mooring systems being considered are catenary, semi-taut, taut and tension-leg.
- Anchoring systems being considered are drag-embedded, vertical-load, pile (driven or drilled/drilled & grouted), suction and gravity.
- A maximum blade tip height of 340m above mean sea level and a minimum blade tip clearance of at least 30m above mean sea level.
- Up to 3 Offshore Electrical Platforms (OEPs) - either fixed foundation (jacket with pin piles, jacket with caissons or gravity base) or subsea OEPs (piled).
- Up to 250km of inter-array cabling.
- Up to 3 export cables, each up to 120 km in length.
- Ancillary elements such as cable protection.
- A grid connection anticipated to be in the Peterhead region, as identified through the Holistic Network Design Follow-Up Exercise.

**Content of the Scoping Report**

We are generally content with the EIA Scoping Report, which is well laid out and flows well however the functionality of the document could be much improved with better use of hyperlinks to make navigation throughout the document quicker and more efficient. We highlight this as a point to be consider for future Scoping Reports.

**Assessment approach**

The EIA Report should consider the impact of all phases of the proposed development on the receiving environment, including effects from pre-construction activities as well as the construction, operation and maintenance and decommissioning phases. We recommend that the following aspects are considered further and included in the EIA Report.

*Ecosystem assessment*

Increasingly, there is a need to understand potential impacts holistically at a wider ecosystem scale in addition to the standard set of discrete individual receptor assessments. This assessment should focus on potential impacts across key trophic levels particularly in relation to the availability of prey species. This will enable a better understanding of the consequences (positive

[1] https://www.gov.scot/publications/guidance-applicants-using-design-envelope-applications-under-section-36-electricity-act-1989/

or negative) of any potential changes in prey distribution and abundance from the development of the wind farm on seabird and marine mammal (and other top predator) interests and what influence this may have on population level impacts.

*Wet storage*

Section 3.8.6-7 refers to the proposed use of wet storage of the foundation for up to two years prior to their integration with the WTGs, likely in the vicinity of the preferred port facility. The fully integrated WTGs and foundations will also be wet stored prior to offshore installation for up to one year.

Wet storage could represent a significant impact. Consideration of the potential impacts on all receptors needs to be addressed with the EIA Report and HRA. We would welcome further discussion on this as and when further details are available.

*Climate change and carbon costs*

The impact of climate change effects should be considered, both in futureproofing the project design and how certain climate stressors may work in combination with potential effects from the proposed wind farm. The EIA Report should also consider the carbon cost of the wind farm (including supply chain) and to what extent this is offset through the production of green energy. We recognise that some aspects of this are addressed in section 18 (Climate).

*Blue carbon*

In addition to the climate change assessments mentioned in the EIA Scoping Report, we welcome that consideration has been given to impacts on blue carbon and that a full blue carbon assessment will be undertaken. We note that the assessment will expand on the information and assessment conducted for benthic ecology to focus on the potential impacts of the proposed development on marine sediments. This assessment should be in respect not only to the wind farm and associated cabling, but also any wet storage areas.

**Habitats Regulations Appraisal**

We welcome the submission of the EIA Scoping Report and HRA Stage 1 LSE Screening Report in a single package, and the opportunity to combine our advice under each assessment process into a single response. We provide HRA advice, where relevant, in each of the Appendices below.

**Positive Effects for Biodiversity/ Biodiversity Net Gain**

We recommend early consideration of potential Positive Effects for Biodiversity as well as nature inclusive design aspects at an early stage and following through into the EIA Report. We acknowledge that, whilst not yet policy, inclusion of these aspects form part of our ability to address both the climate and biodiversity crises and as such we encourage developers to consider this as part of their application.

**Mitigation**

We welcome the identification of 'designed in measures' described in each of the relevant sections of the EIA Scoping Report (for example Section 10.6) and summarised in Appendix A. The EIA Report must clearly articulate those mitigation measures that are informed by the EIA (or HRA) and are necessary to avoid or reduce predicted significant adverse environmental effects of the

proposed development. We advise that the full range of mitigation and monitoring measures, and published guidance, are considered and discussed in the EIA Report.

**Natural Heritage interests to be considered**

We provide advice as detailed below within receptor-specific and impact-pathway specific technical Appendices for key natural heritage interests to be considered in the EIA Report and HRA:

- Advice on ornithology is provided in **Appendix A**.
- Advice on marine mammals is provided in **Appendix B**.
- Advice on benthic ecology is provided in **Appendix C**.
- Advice on fish and shellfish ecology is provided in **Appendix D**.
- Advice on physical processes is provided in **Appendix E**.
- Advice on seascape, landscape and visual impact assessment (SLVIA) is provided in **Appendix F**.

We note there is a specific chapter on climate and the methods on how this will be addressed in the EIA Report, we welcome that this aspect will be considered on its own and across all other receptors. Our comments specific to climate change in respect of our interests are covered within each of the Appendices above where relevant.

**Further information and advice**

We hope this advice is of assistance to help inform the Scoping Opinion, noting that there may be aspects where some further engagement is required to assist in undertaking the EIA Report and HRA.

Please contact me in the first instance for any further advice, using the contact details below, copying to our marine energy mailbox – marineenergy@nature.scot.

Yours sincerely

Jenna Lane

Marine Sustainability Adviser – Sustainable Coasts and Seas

jenna.lane@nature.scot

**NatureScot advice on EIA Scoping Report and HRA Stage 1 LSE Screening Report for the Muir Mhór Offshore Wind Farm**

**Appendix A – Offshore Ornithology**

***Introduction***

Offshore and intertidal ornithology is considered in section 10 of the EIA Scoping Report, and in sections 3.4, 4.4, 5.4, 6.4 and 7 of the HRA Stage 1 LSE Screening Report. A series of scoping questions are raised in section 10.11 and we respond to these question in our advice below. These questions are presented in text boxes to clearly identify them.

**Study area**

| Do you agree with the study area(s) defined for offshore and intertidal ornithology? |
|---|

We are content with the study area as proposed in section 10.2. A 4 km buffer has been used for the Digital Aerial Surveys (DAS), which is acceptable for this site. A 2 km displacement buffer is proposed. This will be adequate if sensitive species such as [redacted] are not present. Only one [redacted] was recorded in the year one surveys, and if the year two results are similar, then the 2 km buffer will be acceptable. The intertidal survey buffer is appropriate.

We note that, with respect to Special Protection Areas (SPAs), a short list of key sites with potential to have connectivity with SPAs is provided in section 10.4.19. At this early stage, we would expect a full list of SPAs and their qualifying features which have theoretical connectivity with the project, based on species foraging distances. We note that this is presented in the HRA screening report.

**Baseline characterisation**

| Do you agree with the use of those data listed in Section 10.3, and any additional anticipated data listed in Section 10.10, being used to inform the Offshore EIA? Are there any additional data sources or guidance documents that should be considered? |
|---|

The data listed in section 10.3 and the anticipated additional data listed in section 10.10 is comprehensive. Our suite of guidance notes (2023)[2] contains information about relevant references, data sources and guidance.

[2] NatureScot marine ornithology advice on marine renewables development: https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/renewable-energy/marine-renewables/advice-marine-renewables-development

| Do you agree that all receptors related to offshore and intertidal ornithology have been identified, and that the preliminary list of Important Ornithological Features (IOFs) is appropriate? |
|---|

We note that only the first year of DAS data has been used to develop the preliminary list of IOFs, as shown in table 10.2, section 10.5.4. While the initial list seems appropriate, other species may need to be included, depending on the results of the year two surveys or assessments of other data sets such as tracking data. No species should be scoped out on the basis of incomplete DAS survey data.

The report is not clear on the duration of the intertidal survey. Section 10.2.4 states that the duration is one year from October 2022 to September 2023. However, section 10.10.7 states that the survey period is only from October 2022 to April 2023. We would anticipate a full year's survey being carried out. Seabirds such as breeding terns may be present on the shore and should be considered as well as waterfowl and waders. A full description of the survey methodology should be provided.

***Intertidal Ornithological Baseline Environment (section 10.4.18)***

The southern stretch of coastline being considered as a cable landfall option falls within the Buchan Ness to Collieston Coast SPA and the cable route would cross the marine extension of the SPA.

Seabirds use the marine waters immediately adjacent to their breeding colonies for a number of essential activities including preening, displaying, bathing and resting. The Buchan Ness to Collieston Coast marine extension of 2km was created specifically to support common guillemot and fulmar, though other species will use it as well. It is used throughout the year, but most intensively in the breeding season.

The installation/decommissioning of cables could disturb or displace birds using the marine extension. Consideration should be given to the timing of the works and a vessel management plan, to minimise impacts on the SPA qualifying species. We advise avoiding works within the 2km SPA extension during the main breeding season.

There is also potential for disturbance of seabirds nesting on the cliffs as the works approach the coastline. Consideration should be given to selecting a cable route and landfall that avoid the most sensitive areas of the nesting colonies within the SPA, and not carrying out works close to the coast during the main breeding season.

**Potential impacts**

| Do you agree with the scoping in and out of impact pathways in relation to offshore and intertidal ornithology? |
|---|

In general, we agree with the proposed scoping in and out of impact pathways as detailed in table 10.5, section 10.7.1. However, wet storage has been scoped in for the operational phase as follows: *'disturbance and/or displacement from WTGs and associated vessels and maintenance activities including wet storage activities'.* We consider that a similar impact pathway exists during

the construction and decommissioning phases in relation to disturbance and therefore wet storage activities should be scoped in for these phases as well.

It is noted that the blades of wet storage turbines will be static and therefore pose no operational collision risk to birds.

**Approach to assessment**

| Do you agree with the proposed assessment methodology for offshore and intertidal ornithology? |
|---|

In general, we are satisfied that the proposed assessment methodology is appropriate, as detailed in section 10.10.9-34. We provide some advice on specific elements below.

***Density modelling (section 10.10.17-18)***

We note that availability bias is not included in the density modelling section. We would expect that species-specific correction factors should be applied to the number of each auk species recorded on the sea's surface. We accept factors derived from Thaxter *et al.* (2010)[3] for guillemot and razorbill, from Spencer (2012)[4] for puffin and using Barlow *et al.* (1988)[5].

***SeabORD (section 10.10.29)***

Please note that the SeabORD model can only be used in the chick rearing period for puffin, guillemot, razorbill and kittiwake. For these species the matrix approach will still be needed in the non-breeding season.

***Population Viability Analysis (PVA) (section 10.10.31-34)***

We clarify that the requirement for PVA should be triggered where a change in baseline adult annual survival rate/mortality rate exceeds 0.02 percentage points and not as a 0.02% change. This small change in terminology is significant in the correct application of our guidance. Further information in relation to this can be found in our Guidance Note 11[6].

We are pleased to see that both the Counterfactual of Growth Rate (CGR) and the Counterfactual of Population Size (CPS) will be used in assessments.

***Distributional responses***

[3] Thaxter, C. B., Wanless, S., Daunt, F., Harris, M. P., Benvenuti, S., Watanuki, Y., Grémillet, D. & Hamer, K. C. (2010) Influence of wing loading on the trade-off between pursuit-diving and flight in common guillemots and razorbills. Journal of Experimental Biology 213(7): 1018-1025.

[4] Spencer, S. M. (2012) Diving behavior [sic] and Identification of Sex of Breeding Atlantic Puffins (Fratercula arctica), and Nest-Site Characteristics of Alcids on Petit Manan Island, Maine. Masters Theses 1911 – February 2014. 812.

[5] Barlow, J, Oliver, C.W., Jackson, T.D. and Taylor, B.L. (1988). Harbour porpoise Phocoena phocoena, abundance estimation for California, Oregon and Washington: II. Fishery Bulletin, 86, 433-444.

[6] Guidance Note 11: Guidance to support Offshore Wind Applications: Marine Ornithology - Recommendations for Seabird Population Viability Analysis (PVA): https://www.nature.scot/doc/guidance-note-11-guidance-support-offshore-wind-applications-marine-ornithology-recommendations

We are moving towards using the term 'distributional responses' to encompass displacement and barrier effects. We appreciate that it can be difficult to separate these two effects, but barrier effects should form an important part of assessments.

| Do you agree with the proposed threshold number of 100 records for using MRSea to generate density surfaces (this differs to that of NatureScot (2023) guidance)? |
|---|

We can confirm, as per our Guidance Note 2[7], that MRSea should be used for density modelling approaches unless the number of data points for a species is **less than 10**, or the species are present in a uniform distribution, in which case it may not be possible to run the spatial elements of MRSea.

If in some instances it is found that MRSea is not working, then the reasons should be explained and design-based approaches can be used.

| Do you agree with the proposal that CRM is run stochastically solely using option 2? This differs from what we infer from NatureScot (2023) guidance which suggest that option 3 and models run deterministically are also required? |
|---|

We note the intention to use the stochastic collision risk model (sCRM) developed by Marsden, E. 2015. We recommend using the 2022 update to the sCRM tool shiny app (Caneco, 2022).[8]

We advise that we can accept the proposal to only use Option 2. We will be updating our guidance shortly to reflect this change in our advice. However, we do expect deterministic outputs for each collision risk species as well as stochastic outputs.

Please note that we are currently reviewing our avoidance rate guidance in light of the Ozsanlav-Harris et al. (2023) review.[9]

| If option 3 models are to be required, NatureScot (2023) guidance advises that site specific avoidance rates are calculated. Could further information be provided how these should be calculated please? Also, could confirmation be provided on other input parameters to use since these are not provided in the NatureScot (2023) Guidance Note 7 for option 3 models. |
|---|

As confirmed above, we do not require Option 3 models. However, for your information, Option 3 only requires site-specific avoidance rates to be calculated if site-specific flight heights are used rather than the generic dataset, or if other standard parameters are changed.

[7] Guidance Note 2: Guidance to support Offshore Wind Applications: Advice for Marine Ornithology Baseline Characterisation Surveys and Reporting: https://www.nature.scot/doc/guidance-note-2-guidance-support-offshore-wind-applications-advice-marine-ornithology-baseline

[8] sCRM tool shiny app: https://dmpstats.shinyapps.io/sCRM/

[9] Ozsanlav-Harris, L., Inger, R. & Sherley, R. 2023. Review of data used to calculate avoidance rates for collision risk modelling of seabirds. JNCC Report 732, JNCC, Peterborough, ISSN 0963-8091. Available at: https://hub.jncc.gov.uk/assets/de5903fe-81c5-4a37-a5bc-387cf704924d

Could confirmation be provided as to the definition of the 'most likely scenario' (MLS), in light of NatureScot (2023) guidance specifying that CRMs should be run for the 'worst case scenario' (WCS) as well as the MLS?

The most likely scenario (MLS) refers to the project design envelope and what is most likely to be built. Worst case scenario (WCS) refers to the worst case scenario from the range of turbine designs in relation to impacts on ornithology and this could vary for different species. It is expected that the developer would provide options for MLS and WCS to be discussed with NatureScot.

Would you be able to provide guidance on how macro-avoidance should be incorporated into gannet and kittiwake collision risk modelling, as birds that are displaced would not be available for collision impacts?

For both species we currently advise that these impacts should be considered as additive.

We are aware of ongoing work looking at how gannet behave with respect to macro avoidance and the means of quantifying this, but this research is not currently published. Until such a point as the research is published and reviewed, we advise that collision and displacement are considered as additive for gannet.

We are also aware that Natural England are proposing a macro avoidance rate for gannet. However, we are not able to accept this in Scotland at present. The work informing this rate is based on 10 studies, with only one of them in Scotland. We don't feel there is enough evidence from the breeding season, or from studies close to gannet breeding colonies, for us to accept the proposed macro-avoidance rate for the breeding season. We have less concerns for the non-breeding season and this can be discussed further with NatureScot.

For kittiwake a precautionary approach is recommended due to evidence that supports mixed responses from kittiwake to offshore wind farm developments (i.e. some birds are displaced and others are not and so are therefore at risk of collision).

Do you agree with the use of a qualitative approach to assessing impacts on migratory bird species, based on Bradbury *et al*. (2014) and the upcoming update to this by the BTO commissioned by Marine Scotland?

We support a qualitative approach to assessing impacts on migratory birds as proposed, until the updated review and associated migratory CRM are made available.

ScotMER are due to publish in the autumn the report for the project: '*Strategic study of collision risk for birds on migration and further development of the stochastic collision risk modelling tool*'. This report should help determine which migratory species may need further consideration.

Could you provide clarity on how to use the data from Furness (2015) to derive population estimates for the non-breeding seasons as described by NatureScot (2020), ideally with a worked example for razorbill or gannet, i.e., for species where multiple BDMPS correspond with a single non-breeding season as defined by NatureScot (2020)?

We have accepted Berwick Bank offshore wind farm's definition of seasons, which helps clarify how to use BDMPS with NatureScot's definitions of seasons. Please refer to the Berwick Bank EIA (Appendix 11.5, Table 3.4)[10] for further information.

Breeding and non-breeding seasons are defined as follows:

- Breeding season: birds are strongly associated with nest site – nesting, egg laying, provisioning young
- Non-breeding season: birds are more widely dispersed and not strongly associated with nest site. *This period subsumes the 'attendance' periods defined in NS guidance.*

Non-breeding season apportioning is dependent on information within BDMPS (Furness 2015)[11]. Where Furness seasons overlap with NatureScot breeding seasons, Furness seasons should be foreshortened.

Could you provide guidance on when documents on how to use Conservation and Management Advice to inform PVAs will become available, given NatureScot (2023) guidance that any counterfactuals used must be compatible with Conservation Management Advice?

We do not currently have guidance on how to use Conservation Management Advice (CMA) to inform PVAs. However, a site's CMA will provide valuable insight, as it includes information about the protected features and their status and trends, site reference populations, sensitivity to pressures and advice to support management. All of which can help you to interpret results from PVA.

Where CMAs are available they can be found on SiteLink[12]. Work is ongoing to complete the suite of advice for SPAs but we do not currently have a date for when they will all be completed.

Could you provide an update as to when anticipated NatureScot guidance on how to consider highly pathogenic avian influenza (HPAI) in assessments is expected and/or provide guidance on accounting for HPAI in assessments?

[10] Berwick Bank EIA – Appendix 11.5: https://marine.gov.scot/sites/default/files/beae821.pdf
[11] Furness, R.W. (2015b). Non-breeding season populations of seabirds in UK waters: Population sizes for Biologically Defined Minimum Population Scales (BDMPS). Natural England Commissioned Reports, Number 164.
[12] SiteLink: https://sitelink.nature.scot/home

We acknowledge that HPAI is an ongoing mortality event and at this point it is challenging to quantify impacts on populations. NatureScot Scientific Advisory Committee Sub-group on Avian Influenza has produced this report[13] on the H5N1 outbreak in wild birds 2020-2023.

The report highlights priorities for 2023 and beyond, including how critical it is that monitoring and research continue during this outbreak in order to investigate interactions between HPAI and other drivers of population changes, such as wind farm effects.

Seabird colony counts to assess impacts of HPAI are being carried out on a range of sites throughout Scotland during the 2023 breeding season. Results from these will be crucial in helping to develop guidance on how to consider HPAI in assessments.

**Cumulative impacts**

| Do you agree with the assessment of the proposed approach to cumulative effects in relation to offshore and intertidal ornithology? |
|---|

We are broadly content with the proposed approach to cumulative assessment described in section 10.8 of the Scoping Report. We support the use of the Cumulative Effects Framework (CEF) tool. The CEF is expected to be available shortly, so we anticipate it will be in place for use in the EIA Report and HRA for this project.

For the breeding season, the list of other projects to be considered for cumulative effects assessment should be based on species specific mean-max plus 1 standard deviation foraging ranges from the project (Woodward et al. 2019)[14].

We recently concluded that the Berwick Bank application would have an adverse effect on site integrity (AEoSI) on multiple seabird species within The UK European Site Network, some of which overlap with the species and sites likely to require assessment for this application. Due to this conclusion and the unknown outcome of the Berwick Bank application at present, we anticipate that multiple PVA models should be run, with and without Berwick Bank.

Cumulative assessment should be further discussed with Marine Directorate and NatureScot to ensure that both the worst case and realistic worst case are both taken forward into a cumulative assessment.

**Mitigation and monitoring**

| Do you agree that the embedded mitigation outlined is suitably relevant to offshore and intertidal ornithology? |
|---|

[13] NatureScot (2023) NatureScot Scientific Advisory Committee Sub-Group on Avian Influenza Report on the H5N1 outbreak in wild birds 2020-2023. Available at: https://www.nature.scot/doc/naturescot-scientific-advisory-committee-sub-group-avian-influenza-report-h5n1-outbreak-wild-birds

[14] Woodward, I., Thaxter, C.B., Owen, E. and Cook, A.S.C.P. (2019) Desk-based revision of seabird foraging ranges used in HRA screening. BTO Research Report No. 724

We welcome the designed in measures described in table 10.4, section 10.6. The proposed designed in measures seem appropriate, but we would expect these to be kept under review as the assessment and development progresses. We advise that the full range of mitigation measures and published guidance is considered and discussed in the EIA Report.

No specific monitoring for offshore ornithology is mentioned in table 10.4. Further information on proposed ornithological monitoring should be discussed in the EIA Report.

**Transboundary impacts**

| Do you agree with the assessment of the potential for transboundary effects in relation to offshore and intertidal ornithology? |
|---|

We note the proposed approach to transboundary impacts set out in section 10.9 and the conclusion that transboundary effects may only arise during non-breeding season. We recommend further consideration of this topic following submission of the final baseline report.

**Habitats Regulations Appraisal (HRA) Stage 1 LSE Screening Report**

***Summary***

In general, the information provided in the HRA screening report is acceptable and as expected. However, we have some specific comments to make as outlined below.

***Potential effects considered for offshore and intertidal ornithology (table 5.4)***

Table 5.4 of the HRA Screening Report details the potential effects considered for offshore and intertidal ornithology. We advise that the potential effect of 'disturbance and displacement' during the operation and maintenance phase should include the presence of operating wind turbines.

***Likely Significant Effect (LSE)***

The approach undertaken in the HRA Screening Report seems appropriate for LSE screening. However, no conclusions on LSE should be made until the second year of survey data is included. This is so that a full picture of how birds are interacting with the array footprint is fully understood.

***Potential LSE for offshore and intertidal ornithology from the proposed development alone (table 5.6)***

*Seabird breeding colony sites*

The list of sites included in table 5.6 is largely correct, but there are some additional seabird breeding colony sites/features that should be included at this stage. These are:

- Mousa SPA – European storm petrel feature

- Ramna Stacks and Grunei SPA – Leach's storm petrel feature. Although this species was not recorded in the year 1 surveys, we advise that features should not be excluded on the basis of incomplete survey data.
- St Abb's Head to Fast Castle SPA

Please note that there may be species which are components of the Seabird Assemblage feature for some sites, but not listed as individual features, that should be considered.

Natural England should be consulted on the inclusion of sites / features they manage e.g.

- Farne Islands SPA
- Coquet Island SPA

*Migratory waterbird sites*

Not all relevant SPAs (and Ramsar sites) with migratory waterbird qualifying features seem to have been included in the table, for example Ythan Estuary, Sands of Forvie and Meikle Loch SPA / Ythan Estuary and Meikle Loch Ramsar site.

It is important to consider all qualifying waterbird features which may fly through the area of the proposed development during migration. Relevant sites may be estuarine or inland sites. We recommend that relevant migratory waterbird sites are included together in a separate section of table 5.6.

*Barrier effects*

Barrier effects should be included more consistently in the operation and maintenance potential effects in table 5.6.

*Buchan Ness to Collieston Coast SPA*

One of the landfall areas of search lies within this SPA, creating potential for disturbance of seabirds on their nests, as works approach cliff nesting habitat on or near the coast. Birds such as fulmar, which are not sensitive to disturbance from vessel activity at sea, are nonetheless sensitive to disturbance on their nests, especially during chick rearing. It will be important to consider this aspect of disturbance in assessments of impacts.

*European storm petrel, Leach's storm petrel, Manx shearwater features*

With respect to these nocturnal species, impacts of lighting should be considered. They may be attracted to and/or disorientated by artificial light sources. As well as turbine lighting, these include lighting on servicing or construction vessels, especially if construction will be a 24/7 operation. Such effects could impact assessment of collision and/or displacement. We recommend considering findings from the Marine Directorate commissioned review[15] to inform the

[15] Marine Directorate (2022) Offshore wind developments – collision and displacement in petrels and shearwaters: literature review. Available at: https://www.gov.scot/publications/review-inform-assessment-risk-collision-displacement-petrels-shearwaters-offshore-wind-developments-scotland/documents/

assessment of the risk of collision and displacement in petrels and shearwaters from offshore wind developments in Scotland.

*Fair Isle SPA*

One row in table 5.6 has a list of species for Fair Isle SPA for which the conclusion is no connectivity in relation to the foraging ranges for these species. The list includes puffin which has a foraging range of 265 km, so it should not be included here. Puffin is assessed correctly for Fair Isle further on in the table.

## Appendix B – Marine Mammals

Marine mammals are considered in section 11 of the EIA Scoping Report and sections 3.3, 4.3, 5.3, 6.3 and 7 of the HRA Stage 1 LSE Screening Report. The scoping questions to consultees set out in section 11.11.1 are answered in our advice below, presented in text boxes to clearly identify them.

### Study area

| |
|---|
| Do you agree with the study area(s) defined in Section 11.3 for the analysis of predicted impacts on marine mammals? |

The proposed approach is to define two study areas, as described in section 11.2, which are:

- Local scale study area – defined as the survey area for the site-specific Digital Aerial Surveys (DAS), which is the array site boundary plus a 4 km buffer.
- Regional scale study area – defined as the relevant species Management Units (MUs), including:
    - Celtic and Greater North Seas MU
    - North Sea MU
    - Coastal East Scotland MU
    - Greater North Sea MU
    - East Scotland and Moray Firth Seal MUs

We agree that these are appropriate study areas for the marine mammal assessment.

### Baseline characterisation

| |
|---|
| Do you agree with the use of those data listed Table 11-1 and any additional anticipated data listed in Section 11.10 being used to inform the Offshore EIA? |

We support the proposed approach of carrying out a desk-based review of existing marine mammal data, focusing on sourcing data that has been collected within or near to the study area. We support the list of existing datasets as described in table 11-1. This has been supplemented by site-specific monthly digital aerial surveys (DAS), and note that interim DAS results have been included in this baseline characterisation. We agree with the additional anticipated data listed in section 11.10.

| |
|---|
| Are there any additional data sources or guidance documents that should be considered? |

We advise that the Unexploded Ordnance Clearance Joint Interim Position Statement[16] should be listed as a guidance document for consideration. However, we note this guidance is mentioned in the EIA Scoping Report text and so the applicant is aware of it.

[16] Marine environment: unexploded ordnance clearance joint interim position statement (published 2021): https://www.gov.uk/government/publications/marine-environment-unexploded-ordnance-clearance-joint-interim-position-statement

| Do you agree that all receptors related to marine mammals have been identified? |
|---|

We agree that all receptors related to marine mammals have been identified, as detailed in section 11.4.

Section 11.4.2 states that rarely sighted species, including humpback whale, will be comprehensively assessed in the baseline characterisation report but that it is not anticipated that they will be subject to a quantitative assessment. Due to an increase in sightings of humpback whale on the east coast of Scotland in recent years, we advise that this species should be qualitatively assessed.

**Potential impacts**

| Do you agree with the scoping in and out of impact pathways in relation to marine mammals? |
|---|

Table 11-4 summarises the impacts to be scoped in and scoped out of the marine mammal assessment. We broadly support the approach to scoping in and out of impacts.

We welcome the inclusion of both Electromagnetic Field (EMF) effects (via prey) and entanglement in the assessment. There is currently a lack of information on potential impacts of EMF and entanglement from dynamic cables. Advice on potential monitoring of EMF is included below.

**Approach to assessment**

| Do you agree with the proposed impact assessment methodology, in particular, the underwater noise impact assessment, for marine mammals? |
|---|

We broadly support the approach to assessment set out in section 11.10.

It is noted that underwater noise modelling is proposed for unexploded ordnance (UXO) clearance. As highlighted above, the joint interim position statement on UXO should be taken into consideration. Our preference is to see the use of deflagration as a removal technique and there is currently a deflagration campaign ongoing in Scottish waters. However, in the absence of the outcomes of this campaign, we advise that currently, both high order and low order clearance should be modelled to ensure the worst case scenario is assessed.

**Cumulative impacts**

| Do you agree with the assessment of the proposed approach to cumulative effects in relation to marine mammals? |
|---|

We agree with the proposed approach to the assessment of cumulative impacts set out in section 11.8. We advise that the Cumulative Effects Framework (CEF) is used once it is available.

**Mitigation and monitoring**

| Do you agree with the suggested embedded commitments considered and the approach to mitigation identified in relation to marine mammals? |
|---|

We are generally content with the embedded commitments described in section 11.6, along with the commitment for additional mitigation measures if required. We advise that the full range of mitigation measures and published guidance is considered and discussed in the EIA Report.

As detailed in our advice above, there is a lack of information on potential impacts of EMF from dynamic cables. Therefore, we encourage consideration of collaborating and contributing to strategic monitoring of EMF impacts from dynamic cables as well as monitoring of entanglement with dynamic cables and mooring systems. We specifically welcome the ScotMER project "*A Targeted Approach to Defining EMF from Subsea Cables and Understanding Potential Impacts on Fish and Benthic Species*".

There do not appear to be any specific marine mammal monitoring measures mentioned in section 11.6. Further information on proposed marine mammal monitoring should be discussed in the EIA Report.

**Transboundary impacts**

| Do you agree with the assessment of the potential for transboundary effects in relation to marine mammals? |
|---|

We agree with the proposed approach to the assessment of transboundary impacts set out in section 11.9. Consideration may need to be given to transboundary and cross border impacts for certain cetacean species, but not for seal species due to existing marine mammal management units. Once initial impact assessment has been carried out we can provide further advice on this aspect.

**Habitats Regulations Appraisal (HRA) Stage 1 LSE Screening Report**

As noted in the HRA Stage 1 LSE Screening Report, bottlenose dolphins from the Moray Firth SAC are known to regularly transit the east coast of Scotland. Therefore, we agree with the conclusion in table 7.1 that the Moray Firth SAC should be screened in as having potential for LSE (alone or in-combination) for bottlenose dolphin. This is due to the location of the export cable corridor and the potential for underwater noise from piling activities and UXO clearance reaching the coastal area.

We also agree that all other marine mammal SACs can be screened out as having no potential for LSE (alone or in-combination).

## Appendix C – Benthic Ecology

Benthic ecology impacts are considered in section 8 of the EIA Scoping Report and sections 3.2, 4.2, 5.2, 6.2 and 7 of the HRA Stage 1 LSE Screening Report. The scoping questions to consultees set out in section 8.10.1 are answered in our advice below, presented in text boxes to clearly identify them.

### Study area

| Do you agree with the study area(s) defined in Section 8.2 for benthic subtidal and intertidal ecology? |
|---|

We are content with the study area as described in Section 8.2 and shown in Figure 8.1, which includes the offshore array area, export cable corridor plus a 15 km buffer. We note that the study area may be refined post-scoping based on further modelling and consultation.

### Baseline characterisation

| Do you agree with the use of those data listed in Section 8.3, and any additional anticipated data listed in Section 8.9, being used to inform the Offshore EIA? |
|---|

We support the proposed approach of carrying out a desk-based review of existing benthic subtidal ecology data, focusing on sourcing data that has been collected within or near to the study area. We support the list of existing datasets as described in table 8-1. We note that this will be supplemented by site-specific survey data obtained from geophysical survey and environmental sampling.

We welcome the proposal to carry out eDNA surveys, which will complement the benthic survey data and may help to detect rare, cryptic, endangered or invasive species. We request that we are consulted on the eDNA sampling methodology prior to sampling commencing.

| Are there any additional data sources or guidance documents that should be considered? |
|---|

We recommend consideration of the inclusion of the following data sources and guidance documents in the EIA Report:

- Pearce, B. and Kimber, J. (2020). The Status of *Sabellaria spinulosa* Reef off the Moray Firth and Aberdeenshire Coasts and Guidance for Conservation of the Species off the Scottish East Coast. Scottish Marine and Freshwater Science Vol 11 No 17, 100pp.[17]

[17] https://data.marine.gov.scot/dataset/status-sabellaria-spinulosa-reef-moray-firth-and-aberdeenshire-coasts-and-guidance

- Feature Activity Sensitivity Tool (FeAST)[18]
- National Marine Plan Interactive (NMPi)[19]
- Joint Nature Conservation Committee (JNCC) Monitoring Guidance for Marine Benthic Habitats (Noble-James *et al.,* 2018)[20]

| Do you agree that all receptors related to benthic subtidal and intertidal ecology have been identified? |
|---|

We are generally content that all receptors related to benthic subtidal and intertidal ecology have been identified in section 8.4 of the Scoping Report.

However, as well as Priority Marine Features (PMFs), there is the potential for *Sabellaria spinulosa* reefs to be present in this region. These reefs are of conservation value under OSPAR and Annex 1 of the Habitats Directive. Presence of *Sabellaria spinulosa* reefs should be recorded during the benthic surveys. There is a gap in knowledge regarding the distribution of these reefs in Scottish waters and any records are invaluable.

**Potential impacts**

| Do you agree with the scoping in and out of impact pathways in relation to benthic subtidal and intertidal ecology? |
|---|

Table 8-4 details the potential impacts to be scoped in and out of the benthic assessment. We are broadly content with the decisions, subject to the following comments.

We note that the increased risk of introduction and/or spread of Invasive Non-Native Species (INNS) has been scoped out for the operation and maintenance phase. However, there is a risk of potentially introducing and spreading marine INNS during the operation and maintenance phase, particularly due to biofouling (and cleaning procedures) on the floating structures. Therefore, we advise that this impact should be scoped in for assessment for this phase.

We also note that indirect effects on benthic ecology from electromagnetic field (EMF) effects generated by inter-array and export cables has been scoped out for the operation and maintenance phase. We advise that due to the uncertainty around EMF and benthic species, scoping this impact out is premature. EMF should be scoped in and considered further in a qualitative assessment. There are some strategic EMF projects being undertaken and these should be included in the assessment if published (e.g. Marine Directorate ScotMER EMF strategic considerations).

[18] http://www.marine.scotland.gov.uk/FEAST/
[19] https://marinescotland.atkinsgeospatial.com/nmpi/
[20] Noble-James, T., Jesus, A. & McBreen, F. (2018) Monitoring guidance for marine benthic habitats (Revised June 2018), JNCC Report 598, ISSN 0963-8091. Available at: https://hub.jncc.gov.uk/assets/9ade4be8-63dd-4bbc-afd0-aefe71af0849

**Approach to assessment**

| Do you agree with the proposed assessment methodology for benthic subtidal and intertidal ecology? |
|---|

The proposed assessment approach is set out in section 8.9 and we are generally content with this. However, we advise that the assessment should quantify, where possible, the likely impacts to benthic PMF species[21]. It should assess whether these could lead to a significant impact on the national status of the PMFs being considered[22].

As we stated above, as well as PMFs, there is the potential for *Sabellaria spinulosa* reefs to be present in the offshore development area. Therefore, we advise that potential impacts to this habitat are also assessed in the EIA Report.

Consideration should also be given to indirect impacts on birds, fish and marine mammals, where appropriate.

**Cumulative impacts**

| Do you agree with the assessment of the proposed approach to cumulative effects in relation to benthic subtidal and intertidal ecology? |
|---|

Section 8.7 explains that, for the cumulative assessment, it is proposed that only certain potential impacts that have the potential to affect the benthic subtidal communities over a more significant area will be scoped in to the EIA Report. It therefore proposes that impacts with limited spatial extent (restricted to the array area and offshore ECC) that do not have an effect on a designated species, site or feature, are scoped out of any further assessment within the EIA.

Potential impacts do not need to spatially overlap to have cumulative impacts. We advise that impacts which are potentially widespread, such an EMF, should be scoped into the cumulative impact assessment.

**Mitigation and monitoring**

We are generally content with the embedded commitments described in section 8.5, along with the commitment for additional mitigation measures if required. We advise that the full range of mitigation measures and published guidance is considered and discussed in the EIA Report.

As detailed in our advice above, there is a lack of information on potential impacts of EMF from dynamic cables. Therefore, we encourage consideration of collaborating and contributing to strategic monitoring of EMF impacts from dynamic cables. We specifically welcome the ScotMER project "*A Targeted Approach to Defining EMF from Subsea Cables and Understanding Potential Impacts on Fish and Benthic Species*".

[21] Priority Marine Features: https://www.gov.scot/policies/marine-environment/priority-marine-features/
[22] NatureScot Priority Marine Features Guidance: https://www.nature.scot/doc/priority-marine-features-guidance

We also recommend that the EIA Report should provide details on how marine invasive non-native species (INNS) will be considered, monitored and recorded, as well as being taken account of in biosecurity plans for each phase of the development.

**Transboundary impacts**

| Do you agree with the assessment of the potential for transboundary effects in relation to benthic subtidal and intertidal ecology? |
|---|

We agree that transboundary impacts in relation to benthic subtidal and intertidal ecology can be scoped out from further consideration.

**Habitats Regulations Appraisal (HRA) Stage 1 LSE Screening Report**

We agree with the conclusion in the HRA Stage 1 LSE Screening Report that no sites with Annex 1 habitat features need to be taken forward to assessment.

## Appendix D – Fish and Shellfish Ecology

Fish and shellfish interests are considered in section 9 of the EIA Scoping Report and sections 3.5, 4.5, 5.5, 6.5 and 7 of the HRA Stage 1 LSE Screening Report. Our advice below focuses on those fish and shellfish species, and where appropriate their associated habitats, that are protected features of European sites or ncMPAs as well as those that are of conservation importance including PMFs and key prey species. The scoping questions to consultees set out in section 9.9.1 are answered in our advice below, presented in text boxes to clearly identify them. In addition, our advice with respect to the HRA Stage 1 Screening Report is also provided below.

### Study area

| Do you agree with the study area(s) defined in Section 9.2 for fish and shellfish ecology? |
|---|

We are content with the study areas as defined in section 9.2 and shown in Figure 9.1 of the Scoping Report. This includes the array area, export cable corridor, a 15km buffer to account for the travel of disturbed suspended sediment and a 50km buffer to account for underwater noise impacts. We note that the study area may be refined post-scoping based on further assessment, modelling and consultation.

### Baseline characterisation

| Do you agree with the use of those data listed in Section 9.3, and any additional anticipated data listed in Section 9.8, being used to inform the Offshore EIA? |
|---|

We support the proposed approach of carrying out a desk-based review of existing fish and shellfish ecology data, focusing on sourcing data that has been collected within or near to the study area. We support the list of existing datasets as described in table 9-2. We note that this will be supplemented by site-specific survey data obtained from a geophysical survey and environmental sampling.

We also note that the development area is likely to be important for sandeel. These are an essential prey species for birds, marine mammals and fish. It is likely that sandeel will be found in high numbers in this area, and consideration should be given to methods to confirm this. We recommend that an appropriate survey is carried out to determine abundance and locations of high densities within the wind farm array area. Survey methods should be discussed and agreed with Marine Directorate and NatureScot.

We welcome the proposal to carry out eDNA surveys, which will complement the fish and shellfish survey data and may help to detect rare, cryptic, endangered or invasive species. We request that we are consulted on the eDNA sampling methodology prior to sampling commencing.

| Are there any additional data sources or guidance documents that should be considered? |
|---|

We advise that the following sources should also be considered in the EIA Report:

- Langton, R., Boulcott, P. & Wright, P. (2021). A verified distribution model for the lesser sandeel, Ammodytes marinus. Marine Ecology Progress Series. 667. 10.3354/meps13693[23]
- Franco A., Smyth K., Thomson S. (2022) Developing Essential Fish Habitat maps for fish and shellfish species in Scotland. Report to the Scottish Government, December 2022. DOI: 10.7489/12450-1[24]
- Feature Activity Sensitivity Tool (FeAST)[25], which is due to be updated shortly with fish and shellfish information.
- With regard to data sources on fish and EMF, we recommend that a recent MSc paper by Lucie Hervé "*An evaluation of current practice and recommendations for environmental impact assessment of electromagnetic fields from offshore renewables on marine invertebrates and fish"* is included as a data source. We can supply a copy of this paper on request.

| Do you agree that all receptors related to fish and shellfish ecology have been identified? |
|---|

We agree with the species identified within the EIA Scoping Report with regards to fish and shellfish ecology. However, we advise that more consideration should be given to prey species of minke whale and bottlenose dolphin, both of which are features of MPAs with connectivity with this proposed development (as highlighted in section 9.3.27-28).

Also, sandeels have been discussed in section 9.3.17 with regards to demersal spawning and nursery grounds. However, please note that sandeels are present in the sediment throughout their lifecycle and not just during spawning. This should be taken into consideration in the EIA Report.

Lastly, freshwater pearl mussel should be included in the assessment given that Atlantic salmon (and other salmonids) are integral to the lifecycle of this species. Therefore, any impacts to salmonids that prevent them from returning to their natal rivers may have a resulting effect on freshwater pearl mussel.

**Potential impacts**

| Do you agree with the scoping in and out of impact pathways in relation to fish and shellfish ecology? |
|---|

Table 9-6 summarises the potential impacts to be scoped in and scoped out of the assessment. We broadly support the proposed approach and offer the following comments.

[23] https://www.researchgate.net/publication/350508503_A_verified_distribution_model_for_the_lesser_sandeel_Ammodytes_marinus

[24] https://www.gov.scot/publications/developing-essential-fish-habitat-maps-fish-shellfish-species-scotland-report/

[25] http://www.marine.scotland.gov.uk/FEAST/

*Underwater noise and vibration*

We agree that underwater noise impacts should be scoped in for all project phases. This should include sandeel (as well as migratory fish and spawning fish species) as they are present at the development site all year round, have a close association with the seabed and are unable to flee from noisy activities. UXO clearance should also be considered in the assessment.

*EMF impacts*

We welcome the scoping in of EMF effects as another impact pathway that is not well understood at present, to increase our understanding of the effects of subsea and dynamic cables, particularly as floating wind becomes an established technology. The impacts from EMF should be considered for all relevant fish species, including elasmobranch species, nephrops and diadromous fish, including migratory fish.

We note that cable burial is listed as an embedded mitigation measure and assume this is in relation to reducing impacts of EMF - we provide further advice on this below.

*Potential impacts on Southern Trench ncMPA*

There may be impacts on the minke whale protected feature of the Southern Trench ncMPA via impacts on prey fish species from the export cable corridor and we recommend this is scoped into the assessment.

*Colonisation of hard structures*

The proposed approach focusses on the introduction of new structures leading to increased biodiversity and/or changes in ecological processes. The effects of introducing floating wind turbine generators, anchoring systems and cabling are not well understood at present, and so we support the scoping in of colonisation of hard structures. This potential impact is also linked to the potential need to remove marine growth, and methods for achieving this.

*Changes in prey species availability*

We advise consideration is required in the EIA Report to ensure that impacts to key prey species (such as sandeel, herring, mackerel and sprat) and their habitats are considered for this development alone and cumulatively with other wind farms. We recognise that most EIA Report's concentrate on receptor specific impacts. However, increasingly we need to understand impacts at the ecosystem scale. Therefore, consideration across key trophic levels will enable better understanding of the consequences (positive or negative) of any potential changes in prey distribution and abundance on marine mammal (and other top predator) interests and how this may influence population level impacts. Consideration of how this loss and or disturbance may affect the recruitment of key prey (fish) species through impacts to important spawning or nursery ground habitats should also be assessed.

We note and welcome the inclusion of assessing fish and subsequent predator aggregation around the project infrastructure. The PrePARED (Predators and Prey Around Renewable Energy

Developments) project[26] may be helpful in the understanding of predator-prey relationships in and around offshore wind farms.

**Approach to assessment**

| Do you agree with the proposed assessment methodology for fish and shellfish ecology? |
|---|

Section 9.8.1 of the EIA Scoping Report lists guidance documents to be used in the fish and shellfish assessment. Other relevant guidance that should be included is: JNCC guidance on underwater noise[27], unexploded ordnance clearance - joint interim position statement[28].

We broadly support the approach to assessment set out in section 9.8. However, we advise that in relation to Priority Marine Features (PMFs) the assessment should quantify, where possible, the likely impacts to key fish and shellfish PMF species. It should assess whether these could lead to a significant impact on the national status of the PMF being considered[5].

**Cumulative impacts**

| Do you agree with the assessment of the proposed approach to cumulative effects in relation to fish and shellfish ecology? |
|---|

Section 9.6 explains that, for the cumulative assessment, it is proposed that only certain potential impacts that have the potential to affect the fish and shellfish communities over a more significant area will be scoped in to the EIA Report. This includes an increase in suspended sediment concentration and underwater noise. It therefore proposes that impacts with limited spatial extent (restricted to the array area and offshore ECC) that do not have an effect on a designated species, site or feature, are scoped out of any further assessment within the EIA.

Potential impacts do not need to spatially overlap to have cumulative impacts. We advise that impacts which are potentially widespread, such an EMF, should be scoped into the cumulative impact assessment.

The EIA Report should consider the cumulative effects of key impacts such as habitat loss/change, especially in relation to diadromous fish as well as key fish and shellfish species that contribute ecological importance as a prey resource. This may differ depending on the life stage being considered.

**Mitigation and monitoring**

We are generally content with the embedded commitments described in section 9.4, along with the commitment for additional mitigation measures if required. We advise that the full range of mitigation measures and published guidance is considered and discussed in the EIA Report.

[26] https://owecprepared.org/
[27] https://jncc.gov.uk/our-work/marine-mammals-and-noise-mitigation/
[28] https://www.gov.uk/government/publications/marine-environment-unexploded-ordnance-clearance-joint-interim-position-statement

It is noted that cable burial/protection informed by a Cable Burial Risk Assessment (CBRA) is listed as a proposed embedded mitigation measure (Table 9-5). However, we highlight research by Hutchison et al. (2020)[29] which establishes that cable burial may actually generate a response from sensitive species as it reduces EMF levels to the 'normal' range that species use to hunt prey or navigate.

It is proposed that an Environmental Management Plan (EMP) will set out mitigation measures and procedures relevant, but not limited to, the management of invasive and non-native species (INNS). The EIA Report should provide details on how marine INNS will be considered, monitored and recorded as well as being taken account of in biosecurity plans for each phase of the development.

No specific monitoring for fish and shellfish is mentioned in the Scoping Report. Further information on proposed fish and shellfish monitoring should be discussed in the EIA Report. We are aware of Marine Directorate proposals to carry out infield measurement of EMF to better understand impacts on benthic and fish species. Therefore, any input this project could assist with, either from project measurements or contributions to this wider work, would be very beneficial.

**Transboundary impacts**

| Do you agree with the assessment of the potential for transboundary effects in relation to fish and shellfish ecology? |
|---|

We agree that transboundary impacts in relation to fish and shellfish ecology can be scoped out from further consideration.

**Habitats Regulations Appraisal (HRA) Stage 1 LSE Screening Report**

*Migratory fish*

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

Furthermore, for some species, like seals, we have a reasonable understanding of connectivity to individual SACs. We also have population estimates for nearly all seal SAC populations in the standard data forms – part of the citation package. For diadromous fish species we do not have population data for any salmon or lamprey SAC on the data forms.

[29] Hutchison, Zoe & Gill, A. B. & Sigray, Peter & He, Haibo & King, John. (2020). Anthropogenic electromagnetic fields (EMF) influence the behaviour of bottom-dwelling marine species. Scientific Reports. 10.

This inability to understand connectivity to and within individual rivers to the development area, currently prohibits an informed assessment of the impact on individual site integrity. This is a necessary step within HRA assessment process.

The recently updated ScotMER evidence map[30] process for diadromous fish confirms the evidence gaps, particularly with respect to spatial and temporal distribution as well as uncertainty around migration routes and connectivity to protected sites. The ScotMER process is an important vehicle for helping to address these evidence gaps and uncertainties. We specifically welcome the ScotMER project '*Diadromous Fish in the Context of Offshore Wind – Review of Current Knowledge & Future Research'*. This research may change conclusions on how diadromous fish are treated in both EIA and HRA going forward.

We have concluded that, based on evidence currently available to us, it is not possible for us to carry out an assessment of diadromous fish to the level required under HRA. We therefore advise that diadromous fish species should be assessed through EIA only and not through HRA.

We advise that offshore wind developers should be contributing to ScotMER research as well as other initiatives such as the Wild Salmon Strategy Implementation Plan[31] and any other strategies that are developed for diadromous fish interests.

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

**NatureScot advice on EIA Scoping Report and HRA Stage 1 LSE Screening Report for the Muir Mhór Offshore Wind Farm**

**Appendix E – Marine and Coastal Processes**

Marine and coastal process interests are considered in section 6 of the EIA Scoping Report and sections 3.2, 4.2, 5.2, 6.2 and 7 of the HRA Stage 1 LSE Screening Report. The scoping questions to consultees set out in section 6.11.1 are answered in our advice below, presented in text boxes to clearly identify them. In addition, our advice with respect to the HRA Stage 1 Screening Report is also provided below

**Study Area**

| Do you agree with the study area(s) defined in section 6.2 for marine and coastal processes? |
|---|

The study area is vaguely defined (including in Figure 6.1) and "will be further refined during EIA with consideration to the tidal excursions'. We recommend that the study area extends at least one tidal excursion outwith the array area and export cable corridor**.** We ask that we are further consulted if the study area differs from what we recommend above.

**Baseline Characterisation**

| Do you agree with the use of those data listed in Section 6.3, and any additional anticipated data listed in Section 6.10, being used to inform the Offshore EIA?<br><br>Are there any additional data sources or guidance documents that should be considered?<br><br>Do you agree that all pathways, receptors and potential impacts related to marine and coastal processes have been identified? |
|---|

The baseline for physical processes is not fully characterised; section 6.4.7 indicates sandwave fields are thought to be relict though possibly active in extreme storms. Some occur in shallower waters, where there is greater potential for mobility. One potential implication of mobile sandwaves would be that cable(s) buried through them might over time become naturally re-exposed, necessitating additional armouring that would increase the overall effect of the operational phase on seabed sediment transport and morphology. We advise that sandwave fields should be mapped; there should be reasonable, desk-based assessment of potential mobility; and the results should be explicitly incorporated into assessment of the 'operational impacts to seabed morphology'.

**Impact Pathways**

| Do you agree that all pathways, receptors and potential impacts related to marine and coastal processes have been identified?<br><br>Do you agree with the scoping in and out of impact pathways in relation to marine and coastal processes? |
|---|

We consider it is appropriate that 'construction impacts to seabed morphology' are scoped in, but the only potential receptors noted are sandbanks and 'depressions'. We highlight that the Moraines element of the Quaternary of Scotland interest of the Southern Trench MPA is also a potential physical processes receptor (as noted for 'operational impacts to seabed morphology'), as the construction impacts could irreversibly damage their morphology. This assessment should formally use the relevant nature conservation MPA Conservation Objectives, and involve expert geomorphological assessment.

Scour should be scoped in as mentioned, but in addition to the potential settings mentioned, the assessment should also consider potential scour around scour protection itself.

We recommend that modifications to wind and tidal regime etc. should be scoped in rather than out (table 6-3). Currently, the Scoping Report considers only physical receptors, but there could be effects on receptors under other receptor topics. The justification also argues that assessments of these effects for other offshore wind farms in the region concluded no significant impacts, but no detail is provided and this comparison is something that should be demonstrated through EIA assessment.

**Approach to assessment**

| Do you agree with the proposed assessment methodology for marine and coastal processes? |
|---|

Definitions of Magnitude and Sensitivity for the Marine and Coastal Processes impact assessment should be provided at this Scoping stage rather than waiting till in the EIA (4.5.14). This is important to avoid potential disagreement over assessment undertaken, and it is standard EIA practice.

Consultation on assessment approach, including modelling, is proposed. We welcome this and highlight that to be effective, this should be done before the detailed assessment is undertaken.

**Cumulative Assessment**

| Do you agree with the assessment of the proposed approach to cumulative effects in relation to marine and coastal processes? |
|---|

The potential re-exposure of a trenched cable(s) at landfall should be assessed as an additional operational impact, especially given the anticipated increases in rates and extent of erosional retreat at the coast due to accelerating sea-level rise. This is to reduce any potential need for future hard engineering, which could in turn disrupt coastal processes, with potential impacts on Loch of Strathbeg SSSI as a receptor. This effect should arguably also be part of the 'in-combination climate change impact of operational period' assessment identified in table 8-16. As other landfalls are currently proposed in the same general area, it may also be relevant to the cumulative impact assessment considerations proposed at section 18.6.5.

NatureScot does not have any oceanographic expertise to agree or disagree with scoping out modifications to stratification / fronts. We note the Scoping Report states that the impacts of the array area on stratification would be limited, rather than negligible. Effects on stratification /

fronts may be more likely than most to occur cumulatively, which may be a reason for scoping this in. MD-SEDD may be able to advise further on this aspect.

**Transboundary impacts**

| Do you agree with the assessment of the potential for transboundary effects in relation to marine and coastal processes? |
|---|

We agree that transboundary impacts can be scoped out from further consideration.

**Habitats Regulations Appraisal (HRA) Stage 1 LSE Screening Report**

We recommend that the study area extends at least one tidal excursion outwith the array area and export cable corridor, rather than the arbitrary distance of 20km which is currently proposed (HRA Screening 4.2, 5.2, 6.2).

**NatureScot advice on EIA Scoping Report and HRA Stage 1 LSE Screening Report for the Muir Mhór Offshore Wind Farm**

**Appendix F – Seascape, Landscape and Visual Impact Assessment (SLVIA)**

Seascape, Landscape and Visual Resources are considered in section 16 of the EIA Scoping Report. The scoping questions to consultees set out in section 16.12.1 are answered in our advice below, presented in text boxes to clearly identify them.

**Potential impacts**

| Do you agree with the scoping in and out of impacts in relation to SLVR? |
|---|

We agree that the proposed development in the wind farm array area and the export cable corridor to MHWS is unlikely to give rise to significant effects to coastal character and / or visual receptors and therefore can be scoped out.

We advise that the assembly and pre-commissioning of the turbines, including any wet storage and related activity is an aspect that requires further consideration. It is unclear whether this should form part of the EIA report for this application or should be considered as an aspect related to the relevant port and harbour expansion considerations. We would welcome further discussions on this issue with regulators and developers as we consider this could have considerable project specific and / or cumulative impacts that should be assessed.

# Northern Lighthouse Board (NLB)

Northern Lighthouse Board

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Your Ref: SCOP-0026
Our Ref: AL/OPS/ML/O6_28_827

Ms Emma Lees
Licensing Operations Team – Marine Directorate
Scottish Government
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

19 July 2023

***REGULATION 14 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017, REGULATION 12 OF THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017 & REGULATION 13 AND SCHEDULE 4 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007***

***Request for Scoping Opinion for Proposed Section 36 Application and Marine Licences for the Muir Mhór Offshore Wind Farm Located Approximately 63km East of the Coast of Peterhead***

Thank you for your e-mail correspondence dated 11th December 2023 relating to the application submitted by **Muir Mhòr Offshore Wind Ltd** in relation to the proposed Muir Mhòr Offshore Wind Farm development located 63 kilometres (km) east of the coast of Peterhead.

Northern Lighthouse Board note the inclusion of Chapter 13 – Shipping and Navigation within the report, with particular reference to Table 13.2, detailing the Embedded Commitment Measures proposed to ensure safety of navigation throughout the lifetime of the project. This includes the development of a Lighting and Marking Plan (LMP) and Navigational Safety Plan (NSP).

NLB also note the inclusion of Cumulative Effects (Section 13.8) within this chapter, and the factors upon which other cumulative projects will be screened in or out of the assessment.

NLB have no objection to the content of the Scoping Report, and no suggestions for additional content.

Yours sincerely

[redacted]

Peter Douglas
Navigation Manager

# North Sea Transition Authority (NSTA)

| | |
|---|---|
| **From:** | Stuart Walters (North Sea Transition Authority) |
| **To:** | MS Marine Renewables |
| **Subject:** | SCOP-0026 - Muir Mhór Offshore Wind Farm - Consultation on Request for Scoping Opinion - Response Required by 10 August 2023 |
| **Date:** | 09 August 2023 15:40:28 |
| **Attachments:** | image001.png |

Good Afternoon,

Below is the response from the NSTA on the Scoping Opinion document for the Muir Mhór Offshore Wind Farm.

The NSTA has no substantial comments on the Scoping Opinion other than to highlight that the document has identified that there is potential for the cable corridor to interact with active pipelines as part of Forties C to Cruden Bay (PL8 & PL721). The applicant should engage with pipeline owners about any interactions at the earliest possible point, this will allow the pipeline owners to approach the NSTA and OPRED to check what updates to existing pipeline consents may be required where interactions occur.

The applicant has identified that there are three oil and gas licence blocks that overlap with the IOU study area (20/11a, 20/12a and 20/6c). The NSTA opened the 33rd Licence Round in October 2022 which closed in January 2023. The NSTA is currently reviewing applications with the ambition to start giving awards in Q3/4 2023, depending on the outcomes further exploration licences may fall within the IOU study area.

Many Thanks,

North Sea Transition Authority

Stuart Walters
Senior Policy Manager – Energy Transition
Strategy Directorate
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# OFCOM

**From:** Spectrum Licensing
**To:** MS Marine Renewables
**Subject:** Ofcom case : 01643254 - SCOP-0026 - Muir Mhór Offshore Wind Farm
**Date:** 12 July 2023 10:51:11

Classification: CONFIDENTIAL

Dear Emma,

**RE: Ofcom case : 01643254 - EXTERNAL:SCOP-0026 - Muir Mhór Offshore Wind Farm - Consultation on Request for Scoping Opinion - Response Required by 10 August 2023**
**REF:**

Thank you for contacting Ofcom.

> Emissions from apparatus for wireless telegraphy (wireless telegraphy is defined in section 116 of the Wireless Telegraphy Act 2006, as amended – 'the Act') may fall under the Environmental Information Regulations 2004 (SI 2004/3391). It could consequently be held that, should such apparatus be used at the site of the Muir Mhòr offshore wind farm located approximately 63km east off the coast of Peterhead, it might result in some form of environmental impact. The nature and extent of any impact would depend on the nature of the use of the apparatus. However, the licences that Ofcom grants under section 8 of the Act, authorising the use of apparatus for wireless telegraphy, require the licensee to ensure that the use of the apparatus be such that Electromagnetic Field emissions are kept well within internationally-agreed limits (see https://www.ofcom.org.uk/spectrum/emf). The use of apparatus for wireless telegraphy other than under and in accordance with the terms of a licence issued by Ofcom or of Regulations that exempt the use of equipment from the need for such a licence is unlawful.

If you have any further queries please do not hesitate to contact the Spectrum Licensing Team on 020 7981 3131 or via email at spectrum.licensing@ofcom.org.uk.

Kind regards,

**:: Brendan**
Licensing Associate
Spectrum Group
Spectrum.licensing@ofcom.org.uk

**:: Ofcom**
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**We are proud to be BSI ISO 9001 certified. Certificate number : FS 549403.**

# RNLI

| | |
|---|---|
| **From:** | Jill Hepburn (Head of Region) |
| **To:** | MS Marine Renewables |
| **Subject:** | RE: SCOP-0026 - Muir Mhór Offshore Wind Farm - Consultation on Request for Scoping Opinion - Response Required by 10 August 2023 |
| **Date:** | 28 July 2023 10:36:02 |
| **Attachments:** | image003.png<br>image004.png<br>image006.png<br>image007.png |

---

Nil return

**Jill Hepburn** | Head of Region - Scotland
M: [redacted] | E:jill_hepburn@rnli.org.uk |


**The RNLI is the charity that saves lives at sea**

# RSPB Scotland

Marine Scotland Licensing Operations Team

Marine Scotland
By email: MS.MarineRenewables@gov.scot

17th August 2023

Dear Emma,

**SCOP-0026 - Muir Mhór Offshore Wind Farm - Consultation on Request for Scoping Opinion**

Thank you for consulting RSPB Scotland on the above development located approximately 63 km east of Peterhead on the east coast of Scotland in the Sectoral Marine Plan (SMP) Option E2 .

We understand the proposed Muir Mhór Offshore Wind Farm would consist of up to 67 floating offshore wind turbines (with maximum tip height 340 meters above MSL, maximum rotor diameter of 300 meters above MSL and minimum blade tip clearance to MSL of 30 meters) up to three offshore electrical platforms (surface or subsea) inter-array and export cables, protection and associated onshore transmission infrastructure to facilitate connection to the national grid. The total site area is around 200km$^2$. We further understand it is likely that foundations will be assembled in a port and stored in a nearby wet storage area for up to two years. Subject to gaining consent, we note construction of the development is scheduled to start in 2027 with operation of the offshore windfarm commencing from late 2030.

We have been unable to ascertain the proposed lifetime of the development but note the ornithological chapter suggests modelling of Population Viability Analysis will be undertaken for 25 years, (the intended lease period if this is different) and 50 years.

The SMP summary for plan option E1 and E2 identifies potential for have significant effects on bird species (specifically Kittiwake, Great Black-backed Gull, Razorbill, Gannet and Guillemot), for which previous wind farm consultations have raised significant concerns. It further states that there may be limited capacity for further development on the east coast of Scotland. The HRA concludes that development at the site should not proceed "until such time that enough evidence on the environmental capacity for seabirds exists to reduce the risk to an acceptable level". As such, sites E1 and E2 are both subject to further regional level survey, research, and assessment. We understand these are currently being undertaken and will be used to contextualise impacts from the site-specific DAS.

**General Comments**

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. Their survival and productivity rates can be impacted by offshore

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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).

RSPB Scotland encourage the adoption of a precautionary approach to the identification of relevant protected sites for seabirds with clear methodology on the exclusion of sites and species. We generally agree with the collection and analysis methods advised by NatureScot, with some exceptions as set out below. We recommend use of the guidance notes available on their website to inform assessment. If an Applicant chooses to undertake supplementary modelling using alternative parameters to that recommended, we suggest this is clearly labelled.

As set out in Searle et al (2023)[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 dynamic marine environment.

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 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.

**Bio-seasons for Kittiwake and Gannet**

The RSPB has outstanding issues with the manner in which the bio-seasons definitions from Furness (2015)[2] have been defined for gannet and kittiwake. This is because by using the "migration-free" seasonal definition as opposed to full breeding season the early and later months of the season are effectively excluded. For example, the kittiwake breeding season is defined as May to July, when evidence from colony monitoring shows that birds are present from April at least to August. In the latter part of the season all birds will have fledged but individual birds will still be present with both young and adult birds coming back to the cliff. These are still SPA birds, and those most likely to be affected by impacts from the development

---

[1] Searle, K. R., O'Brien, S. H., Jones, E. L., Cook, A. S. C. P., Trinder, M. N., McGregor, R. M., Donovan, C., McCluskie, A., Daunt, F., and Butler, A., 2023. *A framework for improving treatment of uncertainty in offshore wind assessments for protected marine birds*, ICES Journal of Marine Science, 2023;, fsad025, https://doi.org/10.1093/icesjms/fsad025

[2] Furness, R.W. (2015) Non-breeding season populations of seabirds in UK waters: Population sizes for Biologically Defined Minimum Population Scales (BDMPS). Natural England Commissioned Reports, Number 16

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**Foraging Ranges for Common Guillemot and Razorbill**

We welcome using foraging ranges as published in Woodward *et al*. (2019)[3] to derive connectivity with SPA colonies. We also recommend that site specific data are examined and where the maximum foraging range from the colony exceeds the generic value, that the site-specific value is used.

The exceptions to this are for common guillemot and razorbill. Tracking on Fair Isle showed foraging for both common guillemot and razorbill distances are greater than those of all other colonies. This may relate to poor prey availability during the study. However, trends for seabirds in the Northern Isles indicate this may be becoming a more frequent occurrence. For all designated sites south of the Pentland Firth (i.e. excluding the Northern Isles), we advise use of mean max (MM) plus one standard deviation (SD) discounting Fair Isle values. For clarity, North Caithness Cliffs SPA is considered to lie south of the Pentland Firth.

| | **All Northern Isle SPAs** | **All sites south of Pentland Firth** |
|---|---|---|
| **Common guillemot** | 153.7 MM+SD | 95.2 MM+SD |
| **Razorbill** | 164.6 MM+SD | 122.2 MM+SD |

In the non-breeding season, seabirds are not constrained by colony location and can, depending on individual species, range widely within UK seas and beyond.

**Gannet**

Whilst the RSPB agree with the majority of the NatureScot advised Avoidance Rates including the use of a 99.2% avoidance rate for non-breeding gannets, in our opinion, a 98% avoidance rate is more appropriate for breeding gannets. This is because the figures used for the calculation of avoidance rates advocated by the SNCBs are largely derived from the non-breeding season for gannet. During the breeding season, gannets are constrained to act as central placed foragers meaning they return to the colony after feeding in order to maintain territories, incubate eggs and provide for chicks. Once chicks have fledged adult gannets remain at sea and no longer visit the colony. Differences in behaviour between the breeding and non-breeding season are likely to result in changes in avoidance behaviour.

This seasonally defined change in reactive behaviour will also be reflected in the distributional changes occurring due to the presence of turbines. As such, alongside the 70% displacement rate recommended by NatureScot for the assessment of gannet, we recommend the presentation of 60% displacement rate during the breeding season.

**Prey species**

Sandeels are a key food source for a number of seabirds including Black-Legged Kittiwakes, Razorbill, and Puffin. The suitability of this area of sea for sandeels may increases the likelihood that birds will be in the area

[3] Woodward, I., Thaxter, C.B., Owen, E. and Cook, A.S.C.P. (2019). Desk-based revision of seabird foraging ranges used for HRA screening. BTO Research Report No. 724, British Trust for Ornithology, Thetford. ISBN 978-1-912642-12-0.

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and therefore increases the potential for impact through collision with the turbines or displacement from the foraging area. It should also be recognised that sandeels are themselves a Priority Marine Features (PMFs) in Scotland due to their ecosystem importance[4], and are vulnerable to impacts from development. Placing a windfarm or cabling on top of a key sandeel spawning and nursery ground could have wider implications for recruitment into the sandeel subpopulation with secondary impacts to seabirds and other sandeel-dependent species.

The proposed offshore export cable corridor overlaps with the Turbot Bank ncMPA. This located in an area of sandy sediment and includes part of the shelf bank and mound feature known as Turbot Bank. This an important site for sandeels, particularly Raitt's sandeel (a UK BAP species) and has been identified as having potential to act as a source of young sandeels for maintaining and restocking surrounding areas. The proposed development array boundary is just 30 meters from this designated feature and has also been identified as high intensity spawning grounds (See Figure 9.3 of the EIA Scoping Report) and nursery grounds (See Figure 9.8 of the EIA Scoping Report) for sandeel. In accordance with the mitigation hierarchy, we suggest impacts to the Turbot Bank ncMPA are avoided.

We note that paragraph 9.3.10 of the EIA scoping report references the sandeel survey carried out by Beatrice OWF which concluded there was no evidence to suggest that construction of the windfarm had negative impacts on the local sandeel population. This study is useful but is only a single study site and reports just one year's findings post construction. Furthermore it also does not report the age profile of sandeels. A diverse age profile is crucial to maintain the sandeel and dependant predator populations. It also did not report on the distribution of the sandeels, in particular in relation to their availability to predators such as seabirds which the presence of turbines is likely to change[5]. Subsequent follow up monitoring is necessary to establish whether these results indicate a long-term trend or reflect good winter sandeel survival in 2019-20. We caution against overreliance on this study. The cumulative impacts of windfarms on sandeels, and the secondary impact to seabirds, should be included within the environment statement.

**Modelling**

In answer to the questions in the scoping report, we do not agree with the proposed threshold numbers of 100 records for using MRSea to generate density service. MRSea will work well with lower number of records.

We agree with NatureScot (2023) guidance for running CRM. Running CRM with Option 3 provides valuable context, but our decision around significance of impacts will be based on option 2. Similarly running the models deterministically adds context particularly when looking comparatively at older developments.

---

[4] Case Study: Sandeels in Scottish Waters

[5] Trifonova, N. I., Scott, B. E., De Dominicis, M., Waggitt, J. J., & Wolf, J. (2021). Bayesian network modelling provides spatial and temporal understanding of ecosystem dynamics within shallow shelf seas. *Ecological Indicators*, *129*, 107997.

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We defer to NatureScot in regard to use of site-specific avoidance rates but wish to highlight that there must be careful post consent monitoring done to derive site specific avoidance rates.

RSPB Scotland consider the 'Most Likely Scenario' to be the likely outcome based on reasonable and commonly accepted assumptions/parameters whereas a worst-case scenario would use the most negative set of assumptions.

In regard to macro avoidance, there is currently no agreed mechanism to combine collision and distributional change modelling, although a framework had been created[6]. We agree with NatureScot that the NE approach of applying a macro-avoidance rate to gannet density prior to calculating collision risk is inappropriate for breeding birds.

We agree with the use of a qualitative approach to assess impacts on migratory bird species, based on Bradbury et al. (2014) and the expected update to this by the BTO commissioned by Marine Scotland.

**EIA Assessment of Significance**

An EIA report must include a description of the likely significant effects of the development on the environment. RSPB are frequently presented with a matrix approach to significance which combines the value of a rector with the magnitude of impacts. This formulaic approach is one way to present significance, but the categorisation is not biologically meaningful and may not be the best way to assesses the significance of impacts. Furthermore, the uncertainty in the score, as described by Wade *et al.,* (2016) is typically not incorporated into this approach. This should be case, and we would recommend doing so following the principal that the greater the uncertainty the greater the need for precaution (Searle *et al.,* 2023)

When assessing significance, it is particularly relevant that:

- Seabirds are relatively long-lived, take longer to reach breeding age than most other birds and have just one or two young per year. As a result, their populations are sensitive to small increases in adult mortality.
- NatureScot's latest assessment of 11 Scottish breeding seabird species show that numbers fell by nearly half (49%) between 1986 and 2019[7].
- Governments of the UK have collectively failed to meet 11 out of the 15 indicators of Good Environmental Status (GES) for our seas as required under the Marine Strategy Regulations 2010. The marine birds indicator is moving away from target. For breeding seabirds, more species are now experiencing frequent, widespread breeding failures[8] .

[6] Kate Searle, Adam Butler, Deena Mobbs, Mark Trinder, Ross McGregor, Aonghais Cook, Aly McCluskie, Bruno Caneco, and Francis Daunt, (2020) Study to Examine how Seabird Collision Risk, Displacement and Barrier Effects Could be Integrated for Assessment of Offshore Wind Developments. Report to Marine Scotland Science

[7] Scottish Biodiversity Indicator – The Numbers and Breeding Success of Seabirds (1986 to 2019) | NatureScot

[8] CEFAS Marine Assessment Tool – Marine Breeding Bird Success https://moat.cefas.co.uk/biodiversity-food-webs-and-marine-protected-areas/birds/breeding-successfailure/

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- Black-legged Kittiwake and Atlantic Puffin are red listed on the Birds of Conservation Concern and have been assessed by the IUCN as vulnerable to global extinction.
- The growth of offshore wind is placing great cumulative pressure on seabird colonies.

RSPB Scotland disagree with the magnitude of impact being assessed in terms of predicted increases to baseline mortality. As above, small increases in mortality can have large impacts. It is more meaningful to view impacts across the lifeline of the development in comparison to population size in the absence of the development and consider long-term viability of colonies and time for recovery.

**EIA Non-technical Summary**

RSPB Scotland advocate for the planning and consenting process to be accessible. In relation to ornithology, the EIA will contain complex statistical models, the output of which is not readily understood by a lay person. A non-technical summary (NTS) is therefore vital to set out the main findings of the EIA report in an accessible way and in plain English so that it is easily understood by the public. It should not just describe the process but also clearly present information (to the specifications of the scoping opinion) with interpretation and explanation with clear figures, maps, and tables as necessary. It should not hide any key messages of the EIA by over-summarising or averaging out findings.

The ornithological section of the NTS should clearly explain what is meant by 'significant' in an ornithological context (see also above). It should provide direction to the reader of where in the EIA Report to find information on how the sensitivity of the receptor was assessed and how the magnitude of potential impacts was calculated. If magnitude of impact has been related to a specific element or elements (for example time to recovery following cessation of project or alteration of the long-term viability of the population) this should made clear.

We recommend the NTS contains clear information on how the mitigation hierarchy has been followed. The mitigation hierarchy requires that:

- Adverse impacts should firstly be avoided as far as possible;
- Any remaining adverse impacts should then be minimised or reduced to as low as practical; and
- For residual adverse impacts which are both unavailable and cannot be reduced further, measures to remedy or offset the impacts should be included within the application.

To make the NTS informative, we welcome the use of short summary tables. We suggest a series of tables are used to present the following information:

- Annual mortality for relevant species using the methods set out in the scoping opinion for the development in isolation
- Annual mortality for relevant species using the methods set out in the scoping opinion for the development in cumulation with impacts arising from any existing or approved development

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- Predicted population size of relevant SPA colonies after the lifetime of the proposed development using the methods set out in the scoping opinion presented and as a percentage (min-max) of what it would have been in the absence of the proposed development
- Predicted population size of relevant SPA colonies after the lifetime of the proposed development and other relevant developments (i.e. in cumulation) using the methods set out in the scoping opinion and presented as a percentage (min-max) of what it would have been in the absence of the proposed development

**Screening for Likely Significance Effects**

The test of Likely Significant Effect (LSE) is a simple screening stage to determine whether or not an appropriate assessment is required. Each qualifying interest must be considered in relation to their conservation objectives. We agree with the conclusion that an appropriate assessment is required.

We agree with the decision not to screen out displacement and disturbance effects based for kittiwake, gannet, Manx shearwater, European storm petrel, and Leach's storm petrel. We are also pleased to see that the assessments for Manx shearwater, European storm petrel and Leach's storm petrel will include consideration of potential effects of lighting. Due to constraints as to when DAS can be undertaken, RSPB Scotland are doubtful that the surveys will reflect the density of birds with crepuscular and nocturnal flight tendencies. This should be acknowledged and accounted for.

Should you require any further information or clarification, please do not hesitate to get in contact.

Yours sincerely,

*Catherine Kelham*

Senior Marine Conservation Planner
RSPB Scotland

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# Royal Yachting Association Scotland (RYA)

RYA Scotland

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25 July 2023

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Marine Licensing and Consenting Casework Officer,
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Marine Directorate
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Dear Emma,

**REQUEST FOR SCOPING OPINION FOR PROPOSED SECTION 36 APPLICATION AND MARINE LICENCES FOR THE MUIR MHÒR OFFSHORE WIND FARM**

I have read the relevant parts of the scoping report on behalf of RYA Scotland. I agree that Shipping and Navigation should be scoped in and would wish to be involved with the Navigational Risk Assessment. I make the following comments about the questions posed. I will work on this with my colleague in the Cruising Association

*Do you agree with the study area(s) defined in section 13.2 for shipping and navigation?* Yes.
*Do you agree with the use of those data listed in Section 13.3 and the additional anticipated data listed in Section 13.10, for informing the EIA / NRA?* Yes.
*Are there any additional data sources or guidance documents that should be considered?* Although the coverage of the UK Coastal Atlas of Recreational Boating published by the RYA does not extend as far as the site it does cover most of the cable routes. Sailing Directions for the East Coast of Scotland have recently been published by Imray on behalf of the Forth Yacht Clubs Association.
*Do you agree that all receptors related to shipping and navigation have been identified?* Yes.
*Do you agree with the impacts scoped in for shipping and navigation and in particular those relating to the use of floating technology?* Yes. However, based on our experience of existing and planned schemes we are not persuaded that that floating technology adds significant additional hazards except in the trivial sense of movements of the devices to a shore base for maintenance.

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*Do you agree the embedded commitments are appropriate, or are there other measures that should be included?* Yes. However, details of the scheme should be forwarded to the Forth Yacht Clubs Association (ecsd@fyca.org.uk) once it has been consented so that the information can be included in updates to the Sailing Directions.
*Do you agree with the assessment of the potential for transboundary effects in relation to shipping and navigation? Yes.*
*Do you agree with the assessment of the proposed approach to cumulative effects in relation to shipping and navigation?* Yes.
*Do you agree with the proposed assessment methodology for shipping and navigation?* Yes.
*Are there any additional shipping and navigation organisations that you would recommend be consulted?* No.

Yours sincerely,

[redacted]

Dr G. Russell FCIEEM(retd) FRMetS
Planning and Environment Officer, RYA Scotland

# Scottish Fishermen’s Federation (SFF)

Our Ref: FH-MMOWF/23-0001

Your Ref: SCOP-0025

Scottish Fishermen's Federation
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08 August 2023

**SFF Response on Muir Mhor Offshore Wind Farm Project EIA Scoping Consultation**

This response to the scoping request is presented by the Scottish Fishermen's Federation 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 has also been consulted and agrees.

**PROPOSED DEVELOPMENT DESCRIPTION**

SFF note from page 22, section 3.6.1, that there are a number of floating foundations types or 'topologies' under consideration by the project, they include Semi-Submersible, Barge, Tension Leg Platform (TLP), Spar, Multi-Tower Semi-Submersible, Buoy and Semi-Spar. Being mindful of post-development coexistence between fishing industry and the offshore wind farms, SFF's preferred type of mooring system is TLP.

**Inter-Array Cables (IACs)**

SFF note from section 3.7.8, p28, that the IACs will be buried after the touchdown point onto the seabed. A detailed cable burial depth of lowering assessment will be undertaken to inform the Cable Burial Risk Assessment (CBRA) for the proposed development.

Being concerned of fishing vessels safety, SFF would like to see that maximum efforts are made by the Developer to ensure 100% cables (IACs and export cables) burial is achieved. In the event of cable burial is not achievable due to technical difficulties, we would recommend using industry standard size (1"-5") rock dump than concrete mattress. The fishing industry is contended of using concrete mattresses in open water.

SFF note from page 31, section 3.7.15 that as an alternative to a fixed surface platform, subsea OEPs are also under consideration by the Developer. We appreciate the fact that the Developer consider

setting up safety zone at the site if subsea OEPs are considered; however, we would suggest that the subsea OEPs be designed in a way that can be reverse disassembled and totally removed during decommissioning and should not remain any snagging hazard on the seabed.

SFF note from page 32, section 3.7.17 "any seabed assets, such as cables and pipelines, which are crossed by the Offshore export cable will have a specific crossing design which will be agreed with the asset owner in advance of installation through a cable crossing agreement". As crossing points create obstacles and snagging hazard to fishing industry, we would suggest that the cable crossing should be avoided as much as possible otherwise the design of cables and pipelines crossing points should be consulted with fishing industry to ensure their impacts are mitigated.

SFF note from the page 37, section 3.8.28 that the Developer will submit a decommissioning programme for approval prior to construction. To reiterate safety concern of the fishing vessels, SFF would like to see all development related infrastructures are recovered/removed to shore and the seabed is restored to its pre-development condition post-decommissioning and it is safe for fishing industry to fully resume in the area.

**BENTHIC SUBTIDAL AND INTERTIDAL ECOLOGY**
**8.10 Scoping Questions**

SFF's response to the section 8.10.1 questions are as follows:
Questions (Q). Do you agree with the study area(s) defined in Section 8.2 for benthic subtidal and intertidal ecology?

SFF's Answer: No specific comment.

Q. Do you agree with the use of those data listed in Section 8.3, and any additional anticipated data listed in Section 8.9, being used to inform the Offshore EIA?

SFF's Answer: No specific comment.

Q. Are there any additional data sources or guidance documents that should be considered?

SFF's Answer: No specific comment.

Q. Do you agree that all receptors related to benthic subtidal and intertidal ecology have been identified?

SFF's Answer: Yes

Q. Do you agree with the scoping in and out of impact pathways in relation to benthic subtidal and intertidal ecology?

SFF's Answer: No. Following should be scoped in:
EMF should be scoped in since there is no concrete science to prove that there are no EMF effects from OREIs on marine environment.
Note: Boulders relocation effects should also be scoped in since page 113, section 8.4.18 of the report confirms the existence of boulders and exposed bedrock in the vicinity of the development.

Q. Do you agree with the assessment of the potential for transboundary effects in relation to benthic subtidal and intertidal ecology?

SFF's Answer: No specific comment.

Q. Do you agree with the assessment of the proposed approach to cumulative effects in relation to benthic subtidal and intertidal ecology?

SFF's Answer: No specific comment.

Q. Do you agree with the proposed assessment methodology for benthic subtidal and intertidal ecology?

SFF's Answer: No specific comment.

**FISH AND SHELLFISH ECOLOGY**
**9.9 Scoping Questions**

SFF's response to the section 9.9.1 questions are as follows:

Questions (Q). Do you agree with the study area(s) defined in Section 9.2 for fish and shellfish ecology?

SFF's Answer: No specific comment.

Q. Do you agree with the use of those data listed in Section 9.3, and any additional anticipated data listed in Section 9.8, being used to inform the Offshore EIA?

SFF's Answer: No specific comment.

Q. Are there any additional data sources or guidance documents that should be considered?

SFF's Answer: No specific comment.

Q. Do you agree that all receptors related to fish and shellfish ecology have been identified?

SFF's Answer: No specific comment.

Q. Do you agree with the scoping in and out of impact pathways in relation to fish and shellfish ecology?

SFF's answer: No. SFF would like to see "Direct damage (e.g., crushing) and disturbance to mobile demersal and pelagic fish and shellfish species" during construction scoped in since numerous fishing activities and spawning grounds have been identified within the development area.

Q. Do you agree with the assessment of the potential for transboundary effects in relation to fish and shellfish ecology?

SFF's Answer: No specific comment.

Q. Do you agree with the assessment of the proposed approach to cumulative effects in relation to fish and shellfish ecology?

SFF's Answer: No specific comment.

Q. Do you agree with the proposed assessment methodology for fish and shellfish ecology?

SFF's Answer: No specific comment.

**COMMERCIAL FISHERIES**
**12.11.1 Scoping Questions**

SFF's response to the section 12.11.1 questions are as follows:

Questions (Q). Do you agree with the study areas defined for commercial fisheries?

SFF's Answer: No specific comment.

Do you agree with the use of those data listed in Section 12.3, and any additional anticipated data listed in Section 12.10, being used to inform the Offshore EIA?

SFF's Answer: Screen shots from plotter data should be used.

Q. Are there any additional data sources or guidance documents that should be considered?

SFF's Answer: No specific comment.

Q. Do you agree that the embedded commitment measures described provide a suitable means for managing and mitigating the potential effects of the proposed development on commercial fisheries receptors?

SFF's Answer: SFF appreciate:
C-11, development of and adherence to a Fisheries Management and Mitigation Strategy (FMMS) by the developer. However, we would propose the FMMS to be developed in consultation with fishing industry and adopted pre-consent/development to ensure all fishing industry's concerns are considered and addressed accordingly.
C-19, "Advance warning and accurate location details of construction" are shared with fishing industry with sufficient amount of time in advance to ensure no disruption is caused to fishing industry.
C-29, the report state, "where practicable, cable burial will be the preferred means of cable protection and cable burial will be informed by the CBRA and detailed within the CaP. In addition, it further elaborates, "In areas where CBRA deems burial not feasible, suitable implementation and monitoring of cable protection will be employed". To reiterate, SFF are of the view that the statement, "suitable implementation and monitoring of cable protection will be employed" is a very weak statement considering the fact that cable protections pose significant safety concern to fishermen. Therefore, we would like to be consulted on all cable protections work designed for the project. We would like to reiterate that use of concrete mattress in open water is not acceptable to fishing industry.

Q. Do you agree with the scoping in and out of impact pathways in relation to commercial fisheries?

SFF's answer: No. The following should be scoped in:
"Additional steaming to alternative fishing grounds for vessels that would otherwise fish within the Proposed development" since it will cause fishing vessels changing normal route and result in additional steaming. This is applicable for both during construction and decommissioning and operation and maintenance. This may be captured in the Fisheries Management and Mitigation Strategy.

Q. Do you agree with the proposed assessment methodology for commercial fisheries?

SFF's answer: No specific comments.

Q. Do you agree with the assessment of the potential for transboundary effects in relation to commercial fisheries?

SFF's answer: No specific comments.

Q. Do you agree with the assessment of the proposed approach to cumulative effects in relation to commercial fisheries?

SFF's answer: No specific comments.

Best regards

Mohammad Fahim Hashimi
**Offshore Energy Policy Officer**
**Scottish Fishermen's Federation**

# Scottish Water

Thursday, 20 July 2023

Marine Licensing
375 Victoria Road

Aberdeen

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Follow Us

Dear Customer,

**Muir Mhór Offshore Wind Farm, , North Sea, AB42 1UA**
**Planning Ref: SCOP-0026**
**Our Ref: DSCAS-0090866-P26**
**Proposal: REQUEST FOR SCOPING OPINION FOR PROPOSED SECTION 36 APPLICATION AND MARINE LICENCES FOR THE MUIR MHÒR OFFSHORE WIND FARM LOCATED APPROXIMATELY 63KM EAST OFF THE COAST OF PETERHEAD.**

**Please quote our reference in all future correspondence**

## Audit of Proposal

Scottish Water has no objection to this planning application; however, the applicant should be aware that this does not confirm that the proposed development can currently be serviced. Please read the following carefully as there may be further action required. Scottish Water would advise the following:

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## 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.

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## 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 contact Scottish Water at the earliest opportunity with strong evidence to support the intended drainage plan prior to making a connection request. We will assess this evidence in a robust manner and provide a decision that reflects the best option from environmental and customer perspectives.

### General notes:

- 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

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,

**Ruth Kerr.**
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."*

# SEPA

**From:** Planning.North <Planning.North@sepa.org.uk>
**Sent:** Monday, July 31, 2023 2:56 PM
**To:** MS Marine Licensing <MS.MarineLicensing@gov.scot>
**Cc:** MS Marine Renewables <MS.MarineRenewables@gov.scot>
**Subject:** SEPA Ref: 9784 - SCOP-0026

OFFICIAL

Dear Emma Lees

**Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017**
**SCOP-0026**
**Muir Mhór Offshore Wind Farm**
**East Coast of Peterhead**

SEPA understand that this consultation pertains only to the offshore infrastructure elements of the proposal and as such we have no comments to make as these matters are outwith our remit.

Kind regards
Nicki Dunn
Senior Planning Officer

# Sports Scotland

| | |
|---|---|
| **From:** | Kerry Gibson |
| **To:** | MS Marine Renewables |
| **Subject:** | SCOP-0026 - Muir Mhór Offshore Wind Farm - Consultation on Request for Scoping Opinion - Response Required by 10 August 2023 |
| **Date:** | 09 August 2023 15:49:37 |

Good Afternoon,

Thanks for the above consultation. I have reviewed the report and have consulted with RYAS and can confirm that **sport**scotland have no objections.

If you require any further assistance, please let me know.

Kerry

**Kerry Gibson** | Planner | **sport**scotland
Doges | Templeton on the Green | 62 Templeton Street | Glasgow | G40 1DA

**| m:** [redacted]
**w:** www.sportscotland.org.uk

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**sport**scotland – **the national agency for sport**
**spòrs**alba - am buidheann nàiseanta airson spòrs

Thoiribh an aire gum bi an dàta pearsanta a bheir sibh dhuinn air a stòradh agus/no air a ghiullachd le **spòrs**alba gus seirbheisean a lìbhrigeadh no conaltradh ribh. Feuch gun tèid sibh gu https://sportscotland.org.uk/privacy/ airson tuilleadh fiosrachaidh mu làimhseachadh air an dàta phearsanta agaibh.

# Scottish and Southern Electricity Networks (SSEN)

SSEN Transmission
10 Henderson Road
Inverness
IV1 1SN

Emma Lees
**Marine Scotland – Licence Operations Team**
By email: MS.MarineRenewables@gov.scot

17 August 2023

Dear Lauren

**REF: SCOP-0026 – Muir Mhor Offshore Wind Farm Scoping Consultation**

Thank you for the opportunity to comment on the scoping report submitted to MD-LOT by Muir Mhor Offshore Wind Farm on 21st June 2023, and our apologies for the delay in responding. we wish to make the following response.

Whilst we note acknowledgement of the Eastern Green Link 2 (EGL2) subsea cable transmission reinforcement project by the scoping report:

*"The onshore scoping boundary has been informed by the identified options for the location of a new 400 kV substation in the Peterhead area, as published by SSEN, and potential landfall locations identified by the project team."*

We highlight that the EGL2 project aligns on an approximately north-south orientation and crosses the Muir Mhor offshore cable export corridor. A Marine Licence was granted for the EGL2 project under licence number 00009943 in May 2023.

In addition, and as part of our responsibilities to deliver and maintain critical national transmission infrastructure within and connecting the North of Scotland, which is required to support NetZero targets, SSEN Transmission is also in early-stage routeing development of an addition subsea cable transmission reinforcement: Eastern Green Link (EGL) 3. It is likely that this additional critical transmission infrastructure upgrade will be required to route in proximity to the Muir Mhor Offshore development export cable alignments.

SSENTransmission 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.

SHE 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

**Kelsey Padgett**
Marine Consents Manager
kelsey.padgett@sse.com

# Transport Scotland

Development Management and Strategic Road Safety
**Roads Directorate**

George House 36 North Hanover St Glasgow G1 2AD
Direct Line: 0141 272 7593, Fax: 0141 272 7350
lain.clement@transport.gov.scot

TRANSPORT SCOTLAND
CÒMHDHAIL ALBA

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

ms.marinerenewables@gov.scot

Your ref:

Our ref:
GB01T19K05

Date:
09/08/2023

Dear Sirs,

**REGULATION 14 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017**

**REGULATION 12 OF THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017**

**REGULATION 13 AND SCHEDULE 4 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007**

**REQUEST FOR SCOPING OPINION FOR PROPOSED SECTION 36 APPLICATION AND MARINE LICENCES FOR THE MUIR MHÒR OFFSHORE WIND FARM, PETERHEAD**

With reference to your recent correspondence on the above development, we acknowledge receipt of the Scoping Report (SR) prepared by GoBe in support of the above development.

This information has been passed to SYSTRA Limited (SYSTRA) for review in their capacity as Term Consultants to Transport Scotland – Roads Directorate. Based on the review undertaken, Transport Scotland would provide the following comments.

**Proposed Development**

The proposed development comprises the Muir Mhòr Offshore Wind Farm (OWF), covering an area of approximately 200 $km^2$ and located approximately 63 km east of Peterhead in Aberdeenshire. The project is anticipated to include up to 67 offshore turbines, with a total generating capacity of approximately 1 GW.

**Assessment of Environmental Impacts**

The SR states that both the foundations and turbines will be assembled in a large construction port and once assembly is completed, they will be floated-off and transported by sea for installation. It is expected that there will be a port serving as the main operations base for the proposed development on the East Coast of Scotland.

Given that the project is located entirely offshore and that the topic of Transport and Access is not mentioned within the SR, Transport Scotland considers it unlikely that the project will have any perceivable impact on the trunk road network. We are therefore, satisfied that this topic can be scoped out of the Environmental Impact Assessment.

I trust that the above is satisfactory but should you wish to discuss in greater detail, please do not hesitate to contact me or alternatively, Alan DeVenny at SYSTRA's Glasgow Office on 0141 343 9636.

Yours faithfully

Iain Clement

**Iain Clement**

**Transport Scotland**
**Roads Directorate**

cc Alan DeVenny – SYSTRA Ltd.

# Ugie District Salmon Fishery Board

| | |
|---|---|
| **From:** | Ugie Salmon |
| **To:** | MS Marine Renewables |
| **Cc:** | "Louise Kershaw" |
| **Subject:** | consultation on Muir offshore windfarm project |
| **Date:** | 11 July 2023 16:01:19 |
| **Attachments:** | image001.png |

Dear Sir

On behalf of the Ugie district salmon fishery board, I would like to be assured that no migrating salmon or sea trout will be put at risk, during the construction phase, in the sea and in the river, and during the ongoing running of the project.

Please tell us what steps the project will take to protect these iconic fish?

Joseph Yule (Chairman)
Ugie District Salmon Fishery Board

Lunar Ugie Salmon
Salmon Fish House
Golf Road
Peterhead
AB42 1LS
tel no. 01779 476209
email joseph@ugie-salmon.co.uk
website www.ugie-salmon.co.uk
open Monday to Friday 8am - 5pm

| | |
|---|---|
| **From:** | Ugie Salmon |
| **To:** | MS Marine Renewables |
| **Subject:** | Muir Mohr offshore wind farm |
| **Date:** | 19 July 2023 15:34:03 |
| **Attachments:** | image001.png |

Marine Scotland

On behalf of the Ugie district salmon Fishery Board, I would like assurances that the migrating wild salmon and sea trout in the sea and in the River Ugie, will not be adversely affected by this project in the construction phase and throughout the operating life of the
Of the project.

kind regards

Joseph Yule (Chairman)
Ugie District Salmon Fishery Board

Lunar Ugie Salmon
Salmon Fish House
Golf Road
Peterhead
AB42 1LS
tel no. 01779 476209
email joseph@ugie-salmon.co.uk
website www.ugie-salmon.co.uk
open Monday to Friday 8am - 5pm

# UK Chamber of Shipping (UKCoS)

| | |
|---|---|
| **From:** | Robert Merrylees |
| **To:** | MS Marine Renewables |
| **Subject:** | RE: SCOP-0026 - Muir Mhór Offshore Wind Farm - Consultation on Request for Scoping Opinion - Response Required by 10 August 2023 |
| **Date:** | 18 July 2023 13:02:16 |
| **Attachments:** | image004.png<br>image005.png |

Dear Marine Scotland Marine Renewables Team,

The UK Chamber of Shipping welcomes the opportunity to respond to the Scoping Report and offers the following response in relation to Chapter 13 Shipping and Navigation.

- Do you agree with the study area(s) defined in Section 13.2 for shipping and navigation?
  - Yes

- Do you agree with the use of those data listed in Section 13.3 and the additional anticipated data listed in Section 13.10, for informing the EIA / NRA?
  - Current AIS summer data is insufficient for the NRA but not that a full summer survey being undertaken in 2023.
  - Chamber welcomes the 20-year MAIB data analysis at NRA

- Are there any additional data sources or guidance documents that should be considered?
  - Not known

- Do you agree that all receptors related to shipping and navigation have been identified?
  - No other suggested

- Do you agree with the impacts scoped in for shipping and navigation and in particular those relating to the use of floating technology?
  - As raised pre scoping in a meeting with the applicant, the Chamber believes that should the applicant proceed with floating turbines then loss of station of a turbine should be considered during the construction and decommissioning phases, in particular when the structures are in transit.
  - In addition, should the development use floating turbines then wet storage areas need to be considered from a navigational risk perspective, including loss of station from a wet storage area as well as displacement of vessels.
  - By virtue of the impact "Vessel interaction with subsea cables and mooring lines associated with the proposed development" being scoped out from the Decommissioning phase, the Chamber takes this to mean that the developer is committing to remove all surface and sub-surface infrastructure, including cabling, a commitment the Chamber supports and should be required.

- Do you agree the embedded commitments are appropriate, or are there other measures that should be included?
  - Depending on the outcomes of the NRA the applicant should consider a Navigation Management Plan to manage interactions between third party vessels and project vessels to reduce navigational risk.
  -
- Do you agree with the assessment of the potential for transboundary effects in relation to shipping and navigation?
  - Accepted for in isolation, should be extended to cumulative as well.

- Do you agree with the assessment of the proposed approach to cumulative effects in relation to shipping and navigation?

    - Chamber was told in pre-scoping meeting that a 50nm buffer from the RLB would be considered. Disappointing not to see that level of data in Scoping Report.
    - Disappointing not to see a figure showing the cumulative wider picture of other developments and proposed developments in the area given upward of 16 other wind farms proposed within a 50nm area.

- Do you agree with the proposed assessment methodology for shipping and navigation?
    - Standard and as expected

- Are there any additional shipping and navigation organisations that you would recommend be consulted?
    - Cruise Britain

Yours faithfully,
Robert

**Robert Merrylees**
Policy Manager (Safety & Nautical) & Analyst

**UK Chamber of Shipping**
30 Park Street, London, SE1 9EQ

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