

E: ms.marinerenewables@gov.scot

Mr Douglas Watson
Lead Consents Manager
Berwick Bank Wind Limited
SSE Renewables
2 Waterloo Street
Glasgow
G2 6AY

Date: 11 May 2021

Dear Mr Douglas,

Habitat Regulations Appraisal Screening under The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) and The Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended)

Thank you for the Habitat Regulations Appraisal (“HRA”) Screening Report received on 9 October 2020, in relation to the construction and operation of the proposed Berwick Bank Offshore Wind Farm, to be located in the outer Firth of Forth and Firth of Tay (“the Proposed Development”).

We have consulted on the HRA Screening Report with the Dee District Salmon Fishery Board (“DSFB”), Esk DSFB, Forth DSFB, Tay DSFB, Fisheries Management Scotland, Natural England (“NE”), NatureScot (operating name of Scottish Natural Heritage) (“NS”), the River Tweed Commission and the Royal Society for the Protection of Birds Scotland (“RSPB Scotland”). In addition, advice from Marine Scotland Science (“MSS”) on the HRA Screening Report was sought. Copies of the representations and MSS advice are attached (see Appendix 1). We advise you to fully review and address these, however highlight some key points below. Further discussion to agree the relevant sites, receptors and phases to be screened into the HRA must be documented via the ‘road map’ process you have proposed in relation to agreeing the scope of the Environmental Impact Assessment (“EIA”) Report. In addition, we advise that the HRA must fully align with the impact pathways identified for assessment in the scoping opinion adopted by the Scottish Ministers in relation to the Proposed Development, dated 9th March 2021 (“the Scoping Opinion”).

Diadromous fish

The proposal to screen out Special Areas of Conservation (“SAC”) outwith 100 kilometres of the proposed windfarm is unacceptable. The SACs identified and selected in the HRA Screening Report as being screened in are agreed, under exception of the Tweed Estuary

SAC, which is screened out. Further SACs may however require to be added and the final selection of rivers and Atlantic salmon populations to be considered in the HRA must be agreed via your 'road map' process which must include discussions with the relevant stakeholders.

With regards to the qualifying features to be considered, we advise that Atlantic salmon must be assessed within the HRA process and not just within the EIA. However with regards to impacts on other qualifying diadromous species such as river and sea lamprey, these are screened out from the HRA and should instead be considered through the EIA Report. In this regard we note that Atlantic salmon is not a qualifying interest of the Tweed Estuary SAC.

In relation to the impacts to be considered within the HRA, we advise that the representations by NS and advice from MSS must be fully considered and again recommend the use of the proposed road map process to agree the impact pathways to be taken forward.

Marine Mammals

With regards to all three marine mammal species associated with the four European Sites located in Scottish waters and identified in the HRA Screening Report, we agree that direct effects from electromagnetic fields can be screened out together with operational noise effects. In addition, we advise that both vessel collision risk and accidental pollution can be screened out from further consideration. The in combination effects identified in the HRA Screening Report are agreed and screened in.

We advise that underwater noise from vessels and changes to prey availability should be screened in for all three marine mammal species associated with the four European Sites located in Scottish waters in respect of all phases (construction, operation and maintenance and decommissioning) of the Proposed Development.

In addition, we advise that consideration of the impacts from pre-construction activities including unexploded ordnance clearance, some geophysical activities and the in combination effects of these must be considered in the HRA.

For the avoidance of doubt, the Southern North Sea SAC is screened in and we highlight the updated advice of NE dated 4 February 2021 in this regard.

Ornithological features

We refer to the representations made by NS, NE and RSPB Scotland together with the MSS advice which must be fully implemented. Where further discussion and agreement is required this must be completed via your 'road map' process. We note that NS provided updated advice with regards to the inclusion of the displacement impacts for gannet, dated 18 February 2021 and this is included in Appendix 1.

In addition to the sites and species identified in the HRA Screening Report, we advise that those identified by NE must also be considered in the HRA.

Benthic

We highlight the advice from MSS with regards to the Berwickshire and Northumberland Coast SAC and impacts considered.

If you require any further assistance or advice on the above, please do not hesitate to contact me.

Yours sincerely,

Emma Lees
Marine Scotland - Licensing Operations Team

Appendix 1

Consultation Representations and Advice



Dee District Salmon Fishery Board

Emma Lees
Licensing Casework Officer
The Scottish Government,
Marine Scotland Licensing Operations Team,
Marine Laboratory,
375 Victoria Road,
Aberdeen, AB11 9DB

By email to ms.marinerenewables@gov.scot
15th Jan 2021

Dear Miss Lees,

Section 36 consent (under the Electricity Act 1989) and marine licences (under the Marine (Scotland) Act 2010 and the Marine and Coastal Access Act 2009).

Berwick Bank Offshore Wind Farm, Firth of Forth Habitats Regulations Appraisal Screening Report.

On behalf of the Dee District Salmon Fishery Board (Dee DSFB) we welcome the opportunity to respond to the above-mentioned pre-planning stage HRA report and to engage with Berwick Bank Offshore Windfarm (BBOW).

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.

Conservation regulations

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 sufficient numbers of 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.

Further assessment of the juvenile salmon stocks in the Dee through the National Electrofishing Programme for Scotland (NEPS) programme has identified that juvenile stocks in the Dee have been assessed as being a 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 and approx. 4% of smolts returning as adults, it's clear that we need to address any additional pressures within both the freshwater and marine environments associated with Dee salmon stocks.

The conclusion from these assessments reflects that despite the decline seen in Dee stocks, the number of salmon returning to the Dee is sufficient to maintain a stable population. However, it does not suggest that the salmon stock is thriving from a biological perspective or that it could withstand further losses.

The neighbouring rivers of the Don, Cowie and Carron have all been classified as grade 3 rivers for 2021. The grade 3 status identifies that the stock is failing critical conservation targets over the last five years and therefore management actions are required to protect the stock, including mandatory catch and release of salmon. These grade 3 classifications illustrate the tenuous position of migratory salmon stocks within the north-east area.

River Dee Smolt Research

Research on migration routes of salmon smolts exiting the River Dee has been undertaken by the River Dee Trust (RDT) and Marine Scotland Science (MSS) between 2017 and 2020. Part of this work has been funded by the European Offshore Wind Deployment Centre (EOWDC) (presented at WREN in May 2019). Preliminary data gained from the acoustic tracking of salmon and sea trout smolts demonstrates timings and pathways of juvenile salmonids entering the marine environment.

This research suggests that smolts exiting the Dee SAC initially travel in a south easterly direction (at least as far as 20 km from the coast). Direction and rate of travel are influenced by ocean currents and as such, smolts may not be able to substantially alter their migration routes. Therefore, the lack of potential for juvenile salmonids to avoid an offshore development is a concern.

To put our concern for smolt losses into context, our acoustic tracking work has found mortality rates averaging 39% before they enter the sea. National research indicates mortality at sea is more than

95% in recent years. Essentially the pressures on smolts are already huge and likely explain the recorded declines in adult salmon returning from the sea. This development must therefore take a precautionary approach to cause no further deterioration of these threatened salmon stocks within the Dee SAC.

Position

The Dee DSFB support the recent response to this consultation made by our representative body Fisheries Management Scotland (FMS) and would like to reiterate the following points within the context of the Dee SAC.

- We are broadly in agreement with the parts of the report dealing with diadromous fish, except for the issues raised below. We agree that Figure 4.2. correctly identifies the Dee SAC site as designated for Annex II diadromous fish.
- We broadly agree with the assessments made in section 5.3. and we support the assessment that underwater noise, EMFs, accidental pollution and in-combination effects cannot be discounted as likely significant effects for the Dee SAC as identified in Section 4.2.
- However, we do not consider that temporary, habitat loss or disturbance can be screened out at this stage for the reasons set out below.
 - We are concerned about the possibility of displacement effects arising from offshore wind farms – essentially the concern is that they may act as ‘artificial islands’ that migratory fish chose to avoid due to visual disturbance. The impacts of such avoidance activity, should it occur, are unknown. Therefore, it will be necessary to consider how fish react to a highly dynamic image of turbine blades (known as ‘shadow flicker’) as represented in the surface window and whether this is likely to affect their performance and / or their use of aquatic habitat. This issue was discussed at the most recent meeting of the ScotMER Diadromous Fish Group.
 - We are also concerned about the cumulative impacts of these schemes with reference to any displacement effects mentioned above. Several offshore windfarms are now active or in development along the east coast. Any potential displacement effect could be magnified by the presence of multiple schemes within a diadromous fish migration route.
 - Furthermore, should these ‘displacement effects’ not be relevant there is a significant risk of increased predation, if the fish aggregate around the turbines. The turbines may then also become predator aggregating devices and given that the location of the BBOW lies within a likely migratory route for wild salmonids returning to the Dee SAC, the impact of this should be considered as part of the Environmental Statement. This has also been identified by the ScotMER Diadromous fish group and is included in the Marine Scotland evidence map for diadromous fish.

If you require any further information, please do not hesitate to contact me.

Yours sincerely

[Redacted]

Dr Lorraine Hawkins

River Director, Dee District Salmon Fishery Board

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15th January 2021

Dear Ms Lees,

BEWRICK BANK OFFSHORE WIND FARM SCREENING REPORT

Thank you for your e-mail of 17th December, and for the opportunity for the Esk District Salmon Fishery Board to comment on this application.

The Esk DSFB is responsible for protecting the salmon and sea trout fisheries of the Esk fishery district, including the River North Esk, River South Esk, River Bervie and River Lunan. The River South Esk has been designated Special Area of Conservation for Atlantic salmon and Fresh Water Pearl Mussel under the EC Habitats Directive. The River North Esk is an important research river for Marine Scotland Science and the salmon populations of this river have been constantly monitored since the 1960s. Salmon and sea trout fisheries in the Esk Fishery District contribute in the region of £5M annually to the local economy and are important local employers.

The Esk DSFB fully supports the response of Fisheries Management Scotland. There remains significant uncertainty over the impacts of offshore wind farms on migratory salmonid fish, and these potential impacts should be appropriately investigated in the scoping report.

We look forward to hearing from you in due course.

Yours sincerely,

[Redacted]

Craig MacIntyre

Clerk to the Esk DSFB

Lees E (Emma)

From: Alan Wells <alan@fms.scot>
Sent: 17 December 2020 13:50
To: MS Marine Renewables
Cc: Lees E (Emma); Brian Davidson
Subject: Berwick Bank Offshore Wind Farm - Habitats Regulations Appraisal Screening Report Consultation

Follow Up Flag: Follow up
Flag Status: Completed

Thank you for the opportunity to comment on the HRA Screening Report for the proposed Berwick Bank Offshore Wind Farm. As we have indicated previously, we consider that the following organisations should be consulted at all stages of the process:

- River Tweed Commission
- Forth District Salmon Fishery Board
- Tay District Salmon Fishery Board
- Esk District Salmon Fishery Board
- Dee District Salmon Fishery Board

We are broadly in agreement with the parts of the report dealing with diadromous fish, with the exception of the issue raised below. We agree that Section 4.2. correctly identifies sites designated for Annex II diadromous fish. This emphasises the point made above, that the fisheries management organisations responsible for these rivers must be fully consulted.

We broadly agree with the assessments made in section 5.3. and we support the assessment that underwater noise, EMFs, accidental pollution and in-combination effects cannot be discounted as likely significant effects for any of the SAC rivers identified in Section 4.2. However, we **do not** consider that temporary habitat loss or disturbance can be screened out at this stage for the reasons set out below.

In recent months, concerns have been raised by some of our members about the possibility of displacement effects arising from offshore wind farms – essentially the concern is that they may act as ‘artificial islands’ that migratory fish chose to avoid due to visual disturbance. The impacts of such avoidance activity, should it occur, are unknown. This issue was discussed at the most recent meeting of the ScotMER Diadromous Fish Group.

By way of explanation, little consideration has been given to the way in which fish may perceive and react to their aerial surroundings as viewed through the water surface. Light passing through the air/ water interface surface is refracted due to the difference in the optical densities of the two mediums. Only light passing vertically through the interface is not refracted and as the angle of incident light moves away from the vertical, the extent of refraction increases. The overall effect of this is that, within the water column, all the visual information passing into the water space from the full 180° arc of the sky and from all around its 360° horizon is compressed within a 97° cone. Fish swimming within the cone view their external surroundings through a relatively small surface window in the form of a disc that varies in size, while continuing to contain all the same information, depending on the fish’s depth within the cone.

Under most conditions the fish’s surface window on the world is essentially devoid of notable information (e.g. at sea) or the window’s visual content is static (e.g. where a forest or mountain overlooks a river or lake). However, a fish swimming in close proximity to a wind turbine, will not see the lower part of the turbine column in the surface window due to reflectance. The more elevated features, such as the moving turbine blades, are potentially more prominent features in the fish’s view of the surrounding landscape than might otherwise be expected.

From the fish’s point of view, any aerial object seen to move into the surface window across the static background is a potentially mortal threat and a response of proportionate intensity is expected. The so-called non-consumptive effects of predation modify the behaviour of prey species, alter performance of individuals and adversely affect populations. It is not likely that fish assess the threat of avian predation based on identification of specific predator

species because the overhead image observed by fish is often distorted when the air-water interface becomes non-planar due to the effects of wind or currents. However, the visual system of fish is reported to be highly sensitive to movement and predation risk is probably assessed non-specifically on this basis. Therefore, it will be necessary to consider how fish react to a highly dynamic image of turbine blades as represented in the surface window and whether this is likely to affect their performance and/ or their use of aquatic habitat.

Please do not hesitate to contact me if you require any further information on the above.

Kind regards,

Alan Wells

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Fisheries Management Scotland
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Lees E (Emma)

From: Alison Baker (FDSFB) <clerk@forthdsfb.org>
Sent: 15 January 2021 16:50
To: Lees E (Emma)
Cc: MS Marine Renewables; MS Marine Licensing
Subject: RE: BERWICK BANK OFFSHORE WIND FARM, FIRTH OF FORTH
Attachments: 201216 - Renewables - FMS response to HRA Berwick Bank.docx

Follow Up Flag: Follow up
Flag Status: Completed

Dear Emma

Thank you for consulting with the Forth district Salmon Fishery Board.

Firstly, we support the submission made by Fisheries Management Scotland which I attach.

In addition to the attached we would reiterate that the wind farm will lie on the likely migration route of salmon to the Teith SAC and whilst therefore although it is seen as being both on the fringes geographically and only being a secondary feature in terms of any impact, it is critical that the population of salmon, sea trout and all other migratory fish (including eels) are not impacted negatively during construction and in operation.

You will see from our use of the word 'likely' that we believe there is insufficient data to clearly state the impacts at present and the EIA must ensure that these are covered. It is critical that there is confidence of the impacts and mitigations measures.

We would also highlight the potential for increased predation, if the fish aggregate around the turbine bases. They may then also become predator aggregating devices, and given that the farm lies on a likely migratory route for wild salmonids and location of feeding for sea trout, the impact of this should be considered as part of the Environmental Statement. This has been identified by the ScotMER Diadromous fish group and is included in the Marine Scotland evidence map for diadromous fish.

Kind regards

Alison

I am currently on flexible furlough and will only be working on Mondays, Tuesdays and Fridays so there may be a delay in responding to your email.



Alison Baker

Clerk to the Forth District Salmon Fishery Board
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Emma Lees
Marine Scotland Licensing Operations Team
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20 January 2020

BERWICK BANK OFFSHORE WIND FARM - CONSULTATION ON HRA SCREENING REPORT

Marine Scotland Science have reviewed the HRA Screening Report, and comments provided by NatureScot and RSPB, and have provided the following comments.

Marine Mammals

MSS agree that the Special Areas of Conservation (SAC) in Scottish waters that should be screened in are:

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

MSS agree with the applicant's conclusions (Tables 5.9, 5.10, 5.11 and 5.13) on:

- Underwater noise from pile driving (should be screened in)
- Changes in water clarity (can be screened out)
- Operational noise (can be screened out)
- EMF (can be screened out)
- In-combination effects (should be screened in)

MSS note that the applicant has screened in vessel collision risk and accidental pollution. For both these impact pathways MSS agree with NatureScot, that these can be screened out. With respect to accidental pollution, as NatureScot note, this will be considered under other regulatory mechanisms.

MSS note that underwater noise from vessels is screened in for the three SACs for seals, but not for the bottlenose dolphin SAC. MSS agree with NatureScot, that this impact pathway should be screened in for all three species associated with the four SACs, for all phases (construction, operation and maintenance, and decommissioning) of the project.

MSS agree with NatureScot, that changes to prey availability should be screened in for all three species associated with the four SACs, for all phases (construction, operation and maintenance, and decommissioning) of the project.

MSS agree with NatureScot, that consideration should be given to other pre-construction activities that can emit significant underwater noise, such as unexploded ordnance clearance and some geophysical activities.

MSS agree with the clarification points that NatureScot have provided on the designated seal haul out sites, and that these should be considered under EIA rather than HRA.

Figure 4.3 and Table 4.3 provide information on transboundary sites; however within the text of the document, Figure 4.3, and Table 4.3, the information is not consistent.

Paragraph 198 provides an abundance estimate for the east coast resident bottlenose dolphin population of 130 individuals, which is an old estimate. The population estimate has since been updated to 195 individuals (Cheney *et al.* 2013). MSS note that this figure and reference are cited in Paragraph 203 of the document.

Annex B is a report by Sparling *et al.* (2012). The text within the document (e.g. paragraph 206) states that this report uses data up to 2017, which is not the case. MSS note that there are updated seal usage maps¹ by Russell *et al.* (2017), which should be used for future assessments.

Marine Ornithology

In preparing our ornithology advice, MSS have considered the HRA Screening Report prepared by Berwick Bank (hereafter, the Developer) and the consultation responses on this from NatureScot (NS, dated 14th December 2020) and from the Royal Society for the Protection of Birds (RSPB, dated 9th December 2020).

Summary

Overall MSS consider that the HRA screening report captures those sites for which qualifying features may have connectivity to the proposed development. The HRA screening report lacks detail to allow MSS to reach satisfactory conclusions on some of the impact pathways screened out for likely significant effects (LSE), for example, the statements provided on direct habitat loss. MSS broadly agree with comments made by NS, including highlighting the need to better evaluate during screening the features of the Outer Firth of Forth and St. Andrews Bay Complex Special Protection Area (SPA). MSS make an additional key comment, further to NS statement on this SPA: we advise that the Forth Islands SPA and Outer Firth of Forth and St Andrews Bay Complex SPA breeding gannets are screened in for (and subsequently assessed for) potential likely significant effect from displacement and/or disturbance during construction, operation and maintenance, and decommissioning, due to emerging evidence. We detail these comments and others below.

Identification of sites and qualifying features

In common with NS, MSS consider the initial long list for sites in Scottish waters and the criteria used to be broadly satisfactory. We consider the current 4 km buffer used for screening of red-throated diver to be in keeping with current guidelines, but do note with NS that evidence of disturbance at greater distances is emerging.

MSS note the following species have been excluded from assessment due to low densities found during survey: breeding Sandwich tern, breeding great skua, breeding Leach's storm petrel, breeding Manx shearwater, breeding cormorant and breeding shag.

¹ Russell, D J F, Jones E L and Morris, C D (2017) Updated Seal Usage Maps: The Estimated at-sea Distribution of Grey and Harbour Seals. Scottish Marine and Freshwater Science Vol 8 No 25, 25pp. DOI: 10.7489/2027-1

Both breeding shag and Manx shearwater, present in the breeding season, are features cited in the Outer Firth of Forth and St. Andrews Bay Complex SPA (see Table 4.5, page 38). MSS note that information regarding baseline characterisation of the cable corridor has not been presented to establish either qualitatively or quantitatively the density of shag or Manx shearwater. MSS consider, in keeping with NS, that all features of the Outer Firth of Forth St Andrews Bay Complex SPA are screened in initially. This would also need to be reflected in the site overview (paragraph 266, page 102).

We agree with the NS comment that those breeding seabird features of SPA sites lying within mean-max foraging range plus 1 standard deviation (SD) should be screened into the initial list.

Impact Pathways, phases of development and screening

Direct Habitat loss

MSS agree with NS that the HRA screening report does not present adequate information to support the conclusion reached in paragraphs 310 (page 110) and 315 (page 111) by the Developer that 'there is no significant direct loss of habitats...' MSS are in agreement with NS's suggestion that there should be a quantification of these effects provided in the context of the proposed development.

We agree with NS's statement that Outer Firth of Forth and St Andrews Bay Complex SPA should be screened in for all features and considered further for direct habitat loss during construction, operation and maintenance, and decommissioning phases.

Disturbance and displacement (see also Barriers to movement, below)

We agree with NS comments regarding the combining of disturbance/displacement in the screening and advise that they should be separated out in the HRA.

Paragraph 316, page 112, includes gannet in the list of species that may not be sensitive to displacement. Subsequently, in section 5.5.3, 'Determination of LSE for seabirds and migratory waterbird features', several Tables (e.g. 5.15, page 114: Outer Firth of Forth and St Andrews Bay Complex SPA; 5.19, page 122: Forth Islands SPA) state: 'Gannet... are not sensitive to disturbance or displacement therefore LSE can be discounted for those (sic) species'.

In alignment with MSS advice returned on the Berwick Bank scoping report (dated 29th October 2020), for gannet, MSS advise that assessment may be required for displacement and barrier effects. MSS note that the Searle et al. (2014)² study did not include Berwick Bank nor Marr Bank projects and assumed a lower displacement rate for gannet than emerging evidence is indicating. Additionally, Warwick-Evans et al. (2018)³ also developed an individual based model for combined assessment of collision risk, displacement, and barrier effects. While this model was applied for a different region, it did indicate that gannet could be vulnerable to displacement and barrier effects during the breeding season from cumulative effects of larger scale developments. MSS suggest that there should be further discussion around the approach to take. This should be informed by the forthcoming Marine Scotland commissioned report⁴ and by earlier modelling studies^{5 6}. MSS advise that the flight physiology and

² Searle, K., Mobbs, D., Butler, A., Bogdanova, M., Freeman, S., Wanless, S. & Daunt, F. (2014) Population consequences of displacement from proposed offshore wind energy developments for seabirds breeding at Scottish SPAs (CR/2012/03). Final report to Marine Scotland Science. Scottish Marine and Freshwater Science Volume 5 Number 13. <https://www.gov.scot/publications/scottish-marine-freshwater-science-volume-5-number-13-population-consequences/>

³ Warwick-Evans, V, Atkinson, PW, Walkington, I, Green, JA. (2018). Predicting the impacts of wind farms on seabirds: An individual-based model. *J Appl Ecol.* 55: 503– 515. <https://doi.org/10.1111/1365-2664.12996>

⁴ Study to examine how seabird collision risk, displacement and barrier effects could be integrated for assessment of offshore wind developments (ITQ-0246). Marine Scotland commissioned study. Publication imminent.

⁵ K R Searle, D C Mobbs, A Butler, R W Furness, M N Trinder and F Daunt. 2018. Finding out the Fate of Displaced Birds. Scottish Marine and Freshwater Science Vol 9 No 8, 149pp. DOI: 10.7489/12118-1 <https://data.marine.gov.scot/dataset/finding-out-fate-displaced-birds>

⁶ Warwick-Evans, V, Atkinson, PW, Walkington, I, Green, JA. (2018). Predicting the impacts of wind farms on seabirds: An individual-based model. *J Appl Ecol.* 55: 503– 515. <https://doi.org/10.1111/1365-2664.12996>

wide ranging ecology of gannets mean displacement (and barrier, see below) impacts should be considered only in the breeding season when they are constrained as central-place foragers.

Thus, as an addition to sites suggested by NS that should be screened in for seabird species potentially affected by disturbance or displacement impacts, we recommend that for Forth Islands SPA and Outer Firth of Forth and St Andrews bay Complex SPA, breeding gannet should be screened in for displacement assessment during the construction, operation/maintenance and decommissioning phases of the development, and that the text in this document should be amended to reflect this.

Table 5.15: For the Outer Firth of Forth and St Andrews Bay Complex, the applicant plans to screen out LSE on some species, for example, non-breeding red-throated diver, for impacts including disturbance and displacement. Given the direct proximity of the cable corridor with this SPA and the known disturbance of red-throated diver by vessel activity⁷ in addition to its strong avoidance of offshore wind farms⁸, MSS agree with the comments made by NS that construction phase disturbance and/or displacement impacts need to be assessed for this and other features of the Outer Firth of Forth and St Andrews Bay Complex SPA. MSS support the recommendation of NS that a qualitative assessment is undertaken and support their suggested approach.

Collision

MSS agree with NS comments on collision, including the addition of those SPA qualifying features within foraging range plus one SD of the site. Regarding migratory species, MSS again highlights a recently commissioned project⁹ that aims to update the 2014¹⁰ strategic migratory bird report and provide an update to the sCRM tool with respect to assessing the impact of collision on migratory species. Deliverables from this contract are expected later in 2021.

Barrier to movement

MSS advise that, for the same reasons set out in the above section on disturbance/displacement, that breeding gannet from the Forth Islands SPA and Outer Firth of Forth and St Andrews Bay Complex SPA should be screened in for barrier effects during operation and maintenance. We suggest engagement with NS, MSS and RSPB to agree methods for assessing the effect, as LSE cannot be excluded.

Changes in prey availability

Paragraphs 313 (page 111) & 319 (page 113), and those highlighted by NS i.e. paragraph 311, would benefit from greater clarity (e.g. distances in km) in relation to the statement that the export cable landfall is not 'near to any European designated site'. However, from section 4.4 in the HRA screening report, MSS understands the export cable is in close proximity to the Outer Firth of Forth and St Andrews Bay Complex SPA (Table 4.5, page 38). The text in these paragraphs should be amended to avoid confusion.

MSS agree with NS that there are knowledge gaps surrounding the impact of introducing hard structures onto soft sediments and any resultant effects to benthos, fish and the trophic dynamics of the local and wider ecosystem (see also Benthic Ecology comments below).

⁷ Fliessbach, Katharina Leonia, Kai Borkenhagen, Nils Guse, Nele Markones, Philipp Schwemmer, and Stefan Garthe, 2019. A Ship Traffic Disturbance Vulnerability Index for Northwest European Seabirds as a Tool for Marine Spatial Planning Frontiers in Marine Science, 6, 192 DOI: <https://doi.org/10.3389/fmars.2019.00192>

⁸ Volker Dierschke, Robert W. Furness, Stefan Garthe 2016. Seabirds and offshore wind farms in European waters: Avoidance and attraction, Biological Conservation, Volume 202, Pages 59-68, DOI: <https://doi.org/10.1016/j.biocon.2016.08.016>

⁹ Strategic study of collision risk for birds on migration and further development of the stochastic Collision Risk Modelling tool. Public Contracts Scotland reference number: SEP395028.

https://www.publiccontractsscotland.gov.uk/search/show/search_view.aspx?ID=SEP395028

¹⁰ Marine Scotland (2014) Scottish Marine and Freshwater Science Volume 5 Number 12: Strategic assessment of collision risk of Scottish offshore wind farms to migrating birds. <https://www.gov.scot/publications/scottish-marine-freshwater-science-volume-5-number-12-strategic-assessment/>

MSS agree with NS that it is pertinent to screen in changes in prey availability during the operation and maintenance phase for all sites with seabird qualifying features within mean/max foraging range (plus 1 SD) of the development, and those additional features of the Outer Firth of Forth and St Andrews Bay Complex SPA that may be impacted.

Accidental Pollution

MSS agree with NS comments on accidental pollution.

Water clarity/suspended sediment

MSS agree with NS that these impacts will need further consideration in the context of the foundations chosen.

In-combination effects

MSS agree with NS comments regarding in-combination effects that SPAs listing species within foraging range plus one SD should be considered for in-combination impacts. In addition, MSS support the inclusion of the in-combination impact of displacement and barrier effects to breeding gannet at the Forth Islands SPA, and welcome further discussion in this respect.

Diadromous Fish

HRA Stage 1 Screening Report

4.2.1. Initial Identification of Sites

MSS disagree with an arbitrary cut off (100 km) being used to screen out SACs distant from the development site. If diadromous fish from or returning to particular SACs are present in the area where they may be impacted by the development, and if there are potential impact mechanisms, all such SACs should be screened in, regardless of distance from the development. MSS agree with the six sites screened in, as there is evidence that adult Atlantic salmon returning to all of them may do so via the development site. In addition, it is possible that smolts emigrating from these SAC rivers may also do so through the development site, and there are known potential impact mechanisms to diadromous fish from some (pre-) construction activities e.g. physical trauma and/or acoustic impacts from unexploded ordnance clearance (high order detonation) or foundation installation methods (impact piling). MSS advise that there may be other SACs which should be screened in to the HRA.

The Annex II diadromous fish species present in all or some of the six sites selected are salmon, river lamprey and sea lamprey (Table 4.2). MSS note that while there is now some information on possible connectivity for salmon with the development site, this is not the case with the lamprey species for which there is little information on their spatial distribution outwith estuaries.

5.3.2 Pathways for LSE: Potential impacts on diadromous fish

MSS advise that several of these pathways for LSE need more detailed and informed consideration. For example:

- Paragraphs 180, 184, and 187: temporary habitat loss/disturbance and long-term habitat loss. MSS advise that lack of overlap between development site and SAC is insufficient justification to exclude these impact pathways, as Annex II diadromous fish may be present at a distance from the river they will spawn in.
- Paragraphs 181, 185. Increases in SSC and sediment deposition. To exclude increased SSC as a potential impact mechanism, there will need to be improved justification, than merely stating (without evidence being presented) that, as migratory fish are highly mobile, they will be able to avoid areas of increased SSC.
- Paragraph 186. MSS note that just because diadromous fish migrate, this does not mean that they are at all times highly mobile. They may have stages when they do not move much, if at all.
- MSS would also suggest that there will need to be consideration of whether the physical presence of the structures may affect predator-prey relationships and result in potential impacts to diadromous fish during construction and operation. This potential impact

mechanism was also raised by MSS in October and November 2020 in our comments on the Berwick Bank Scoping Report.
The above also apply to associated tables (Tables 5.3 to 5.8) and the Summary Table 7.1

NatureScot consultation response of 14/12/2020

MSS generally agree with the comments and suggestions made by NatureScot in relation to diadromous fish.

Benthic Ecology

MSS are in agreement with SSE's conclusions regarding impact pathways and likely significant effect on Annex I habitat features at the Berwickshire and Northumberland Coast SAC (section 5.2.1).

MSS agree that the impacts that should be screened in are: changes in physical processes during the construction phase; increases in SSC and sediment deposition but only for the export cable corridor during all phases; risk of accidental pollution during construction; and in-combination effects during all phases.

MSS suggest re-wording paragraph 164 on colonisation of hard structures, although admittedly, this point is not relevant to the Habitats Regulations Appraisal. SSE state that localised increases in biodiversity may be beneficial for benthic ecology. Given that this offshore wind farm is being built in an MPA that is designated for soft sediment habitats (shelf banks and mounds), it is debatable whether an increase in biodiversity is beneficial or not. The increase in biodiversity will result from colonisation by hard-substrate species together with fish and invertebrates that aggregate around the scour protection and foundations. These are very different ecosystems to those found on soft sediment. MSS recommend removing the statement on ecological benefits from this paragraph, and we recommend the applicant undertakes a quantitative assessment of this impact in the EIA and Marine Protected Area assessment.

Neither NatureScot nor RSPB mention effects on benthic ecology directly in their comments concerning this HRA but NatureScot do mention indirect pathways which relate to marine mammals and seabirds i.e. changes in prey availability.

MSS agree with NatureScot's comments for both marine mammals and seabirds, in relation to changes in prey availability that may arise during all phases of development, with the potential to impact features of some SACs (marine mammals) and SPAs (seabirds). The introduction and colonisation of hard structures in a soft sediment environment will likely result colonisation of this novel substrate by benthic epifauna, and fish and invertebrate prey species aggregating around them^{11 12} (Reubens et al. 2011, 2013), which consequently could attract both seabird and marine mammal predators.

MSS also agree with NatureScot that electromagnetic fields (EMF) may influence behaviour of prey species for marine mammals or seabirds. NatureScot mention EMF in relation to floating turbines with free-hanging cables. MSS confirm that this impact should also be considered for buried cables, as research has demonstrated that even when buried, emission of EMF can impact behaviour of fish and invertebrates¹³. Although the evidence base is growing for EMF, MSS acknowledge that it may

¹¹ Reubens, J. T., Braeckman, U., Vanaverbeke, J., Van Colen, C., Degraer, S., and Vincx, M. 2013. Aggregation at windmill artificial reefs: CPUE of Atlantic cod (*Gadus morhua*) and pouting (*Trisopterus luscus*) at different habitats in the Belgian part of the North Sea. Fisheries Research, 139: 28–34.

¹² Reubens, J. T., Degraer, S., and Vincx, M. 2011. Aggregation and feeding behaviour of pouting (*Trisopterus luscus*) at wind turbines in the Belgian part of the North Sea. Fisheries Research, 108: 223–227.

¹³ Hutchison, Z. L., Gill, A. B., Sigray, P. He, H., King, J. W. (2020). Anthropogenic electromagnetic fields (EMF) influence the behaviour of bottom-dwelling marine species. Scientific Reports 10, 4219 (2020).

<https://doi.org/10.1038/s41598-020-60793-x>

not be possible to carry out a full quantitative assessment of EMF emitted from export and inter-array cables on behaviour of prey species.

Hopefully these comments are helpful to you. If you wish to discuss any matters further then please contact the REEA Advice inbox at MSS_Advice@gov.scot.

Yours sincerely,

Renewable Energy Environmental Advice group
Marine Scotland Science



Lees E (Emma)

From: Kerby, Martin <Martin.Kerby@naturalengland.org.uk>
Sent: 04 February 2021 11:15
To: Lees E (Emma)
Cc: Walker, Rebecca; Fawcett, Alex; Meadows, Michael
Subject: Berwick Bank Offshore Wind Farm - Habitats Regulations Appraisal Screening Report Consultation- Response Required by 10 December 2020 - Req for further advice

Dear Emma

Thank you for providing an additional opportunity for comment on the Berwick Bank windfarm HRA screening report.

Regarding marine mammals, Natural England considers that the appropriate SACs and potential impacts on them have been taken forward for consideration of LSE.

Natural England wishes to provide further, site-specific feedback on ornithology issues in addition to that provided in our email of 6th December 2020:

Lindisfarne SPA/Ramsar site – it is unclear why this SPA/Ramsar site was not considered for potential impacts on migratory waterbirds. We would appreciate clarity on this, given its close proximity to the Scottish border and the potential for migratory waterbird flightlines to/from Lindisfarne to interact with the proposal site. It may be that the use of the NHZ has resulted in the screening process being too focussed at this early stage. Other sites that might also be considered are Holburn Moss SPA/Ramsar site and Northumbria Coast SPA/Ramsar site, though we recognise that the waterbird features of the latter site (purple sandpiper and turnstone) are unlikely to be impacted by offshore windfarms.

Northumberland Marine SPA – Northumberland Marine SPA protects the favoured foraging areas of tern species from 4 English SPAs: Northumbria Coast, Lindisfarne, Farne Islands, Coquet Island: the boundary of the site delineates those sea areas shown to be the most suitable areas of sea for these species. In addition, 'maintenance areas' used by guillemot and puffin in the waters immediately around the Farne Islands and puffin at Coquet Island fall within the boundary. As impacts within the boundary of the Northumberland Marine SPA are not likely, it would be more appropriate to consider the 'source' colony SPAs in the LSE screening rather than Northumberland Marine SPA, given the mobility of the protected features. We offer some site-specific advice on the two main sites of concern in the context of SPA seabirds below.

Farne Islands SPA – we agree that guillemot and the seabird assemblage should be taken through to LSE due to displacement effects, noting that puffin is a named assemblage component of the seabird assemblage, and razorbill also forms part of the assemblage. Both could interact with the proposal site at different times of the year. In addition, we consider that the seabird assemblage should be considered for LSE for collision as well, due to kittiwake being a named assemblage component of the seabird assemblage.

Coquet Island SPA – we consider that the seabird assemblage of this SPA should be considered for LSE, as puffin is a named assemblage component of the site which could interact with the proposal site.

Flamborough and Filey Coast SPA – Natural England considers that the guillemot and razorbill features of the SPA should be considered for LSE due to displacement effects, given the potential for impacts outside of the breeding season to arise. Puffin also forms part of the SPA's seabird assemblage and would also be susceptible to impacts outside of the breeding season. Cumulative impacts from multiple windfarms in the North Sea are of concern for these features.

In addition to our previous methodological comments regarding non-breeding season impacts, we would also query whether it is appropriate to treat gannet as not being susceptible to displacement effects, given the significant rates of macro-avoidance shown by this species. Natural England generally advises that displacement effects are considered as well as collision mortality when assessing impacts on this species, though we recognise that the UK SNCBs may advise differently on this matter.

Many thanks, Martin

Martin Kerby
Senior Adviser: Nature Recovery Network
Northumbria Team
Lancaster House
Newcastle upon Tyne, NE4 7YH

Tel: 0208-225-6829 Mobile: [Redacted]

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For further information on the Discretionary Advice Service please visit: <https://www.gov.uk/discretionary-advice-service-get-advice-on-planning-proposals-affecting-the-natural-environment-in-england>, and for further information on the Pre-submission Screening Service please visit: <https://www.gov.uk/pre-submission-screening-service-advice-on-planning-proposals-affecting-protected-species>.

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Lees E (Emma)

From: Fawcett, Alex <Alexandra.Fawcett@naturalengland.org.uk>
Sent: 16 December 2020 16:32
To: MS Marine Renewables
Cc: Wilson J (Jessica); Bamlett R (Rebecca); Copley, Victoria
Subject: RE: Berwick Bank Offshore Wind Farm - Habitats Regulations Appraisal Screening Report Consultation- Response Required by 10 December 2020 - NIL RESPONSE

Follow Up Flag: Follow up
Flag Status: Completed

Dear Emma,

Apologies for the delayed response. We have not been able to consider this report in detail but have had an initial look at the report from an ornithological perspective. We have the following brief comments.

All of the English SPAs that we would have expected to be screened in have been, as far as we can tell.

The screening does appear to focus on breeding season and foraging range, and it should be considered that there may be impacts on seabird features of English SPAs in the non-breeding season. E.g. particularly gannet but also possibly kittiwake and auks during spring and autumn migration, and possibly over-wintering. We know for example that a proportion of gannet from FFC will migrate up and over Scotland rather than through the Channel.

In future could any consultations please be sent to our consultations hub consultations@naturalengland.org.uk.

Kind regards,
Alex.

Alex Fawcett

Marine Industries Senior Specialist
0208 0267614
[Redacted]

<http://www.gov.uk/natural-england>

Note: if you wish to send Natural England a consultation, please do so by email to consultations@naturalengland.org.uk

Lees E (Emma)

From: Karen Taylor <Karen.Taylor@nature.scot>
Sent: 18 February 2021 15:47
To: Bamlett R (Rebecca); Lees E (Emma)
Cc: Holland G (Gayle); Erica Knott
Subject: Berwick Bank Scoping Advice - Gannet displacement - NatureScot advice - Updated

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Rebecca

We're aware the Marine Scotland Science have recently advised that displacement impacts should be considered for gannet with respect to Berwick Bank offshore wind farm. We had previously advised within our scoping advice (letter dated 07/10/20) that "*modelling undertaken by CEH for Forth & Tay¹⁵ indicates that gannet suffered no significant energetic costs or impacts on survival or productivity from displacement*". On further consideration of 1) emerging (but as yet unpublished) evidence from post consent monitoring indicating gannets may displace over larger distances; and 2) the increased number of wind farms being proposed and therefore larger cumulative effect, we would agree with MSS that it is now time to reconsider this advice, and start to include displacement impacts within our assessments for gannet.

I hope this helps clarify the situation going forward.

Best wishes,
Karen

Reference

¹⁵CEH original displacement model for the Forth & Tay, further information available from:
<http://www.gov.scot/Topics/marine/marineenergy/Research/SB7>

Karen Taylor | Marine Sustainability Adviser

NatureScot | The Enterprise Centre | Kilmory Industrial Estate | Lochgilphead | Argyll | PA31 8SH

Mobile: [Redacted]

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Emma Lees
Marine Scotland – Licensing Operations Team
Marine Laboratory
PO Box 101
375 Victoria Road
Aberdeen
AB11 9DB

14 December 2020

Our ref: CNS REN OSWF SG –
Berwick Bank – Pre application

Dear Emma

BERWICK BANK OFFSHORE WIND FARM, FIRTH OF FORTH

NATURESCOT ADVICE ON HABITATS REGULATIONS APPRAISAL

Thank you for requesting our on the HRA stage 1 screening report for the proposed Berwick Bank offshore windfarm in the Firth of Forth submitted by Berwick Bank Wind Limited (BBWL).

General comments

The purpose of this screening document (reference EOR0766 HRA: Stage 1 Screening report Rev03 28 September 2020) is to help augment the EIA process as well as satisfy the Habitats Regulations Appraisal (HRA) requirements in identifying those Natura / European sites and qualifying features that will need to be further considered as this project progresses through the application process. This document provides consideration of the sites / features and a conclusion on whether or not a likely significant effect (LSE) will occur through the various impact pathways from the construction and operation of a windfarm at Berwick Bank including decommissioning.

In general there is fairly limited narrative provided to adequately justify the decisions made within the LSE matrix tables particularly in relation to consideration of ornithology site/features in section 5. Without sufficient information and precaution at the LSE stage there is a danger of prejudging adverse effect on site integrity (AEOSI). We expect a cautious approach to LSE and tend to consider if there is connectivity, and a plausible pathway with mortality consequences then LSE should be concluded. It's true for distant sites that we don't expect the level of impact to go remotely near AEOSI, but it registers an impact that could prove important later in cumulative work. The approach taken in this report means they have screened out a lot of species on basis that they are distant so the population is very unlikely to form a significant proportion of those

being impacted. Strictly speaking in such instances LSE should be concluded, although it will be clear that a decision of no adverse effect can be rapidly reached later on. Despite this, we have reviewed all of the LSE matrix tables and those sites and species of primary interest subject to our advice as outlined below have been included.

Layout and digitization

The report is structured such that receptor groups are not grouped together through each stage of the LSE screening and without embedded hyper-links this makes navigating through the document to follow the narrative on receptors, species and sites overly cumbersome, especially as those page numbers detailed in the contents don't match the PDF document page number. Many pages also needed to be viewed in landscape necessitating repeated rotate view changes. We reiterate our earlier advice that we wish to see consideration given to viewers of these documents and for the presentations to be made easier for readers to follow. We raise this now so that further thought can be given to the EIAR presentation going forward.

NatureScot advice

Diadromous fish

Identification of sites and qualifying features

We disagree with the approach of only including rivers within 100km of the proposed windfarm. Paragraph 110 states that the SACs selected are because they are located with 100 km of the development area and that this approach is 'precautionary'. There is no further explanation on the rationale judging 100 km to be 'precautionary' in relation to the behaviour of the relevant diadromous fish species. This does not take account of the mobile nature of some diadromous fish species, nor does it account for the migratory routes from natal rivers which may pass through the windfarm footprint which could be from SACs beyond 100km.

Previously, NatureScot has advised that it was difficult to ascertain which species and rivers should be included within the HRA process as our knowledge on diadromous fish movements at sea was limited. Our knowledge continues to grow and we advise now that Atlantic salmon should be considered further within the HRA process and not just within the EIA. We do not however, have any further information relating to other species such as river and sea lamprey so we continue to advise that impacts on these species should be addressed through the EIA process.

It is likely that key current research projects being undertaken by Marine Scotland Science will have reported or will have results that can be utilised in the assessment of this project. This includes the tracking work and the genetic work being undertaken down the East coast of Scotland and this should be used to help inform the final selection of rivers and Atlantic salmon populations to be included within the HRA. This may require further discussions with Marine Scotland Science and we would be happy to be involved in these discussions going forward.

Key impacts to be considered for diadromous fish (Atlantic salmon):

- Underwater noise (sound pressure) – during the pre-construction phase particularly in relation to any UXO clearance. Construction phase e.g. vessel movement, foundation installation especially piling, drilling etc. Operation and maintenance phases where there is any noisy maintenance works and potentially operational noise depending on windfarm type (fixed or floating) and decommissioning activities.
- Underwater noise (particle motion) - as above.
- EMF – consideration is required of both the export cable and cables within the windfarm site. This should also consider any differences of inter-array cables between fixed and floating wind turbine generators.

We also advise there may need to be further consideration of whether further impacts relating to predator prey relationships may be required during the operational phase of the wind farm.

Lastly, little information has been given on any requirement for in combination assessment of this proposal with other developments. This will require further thought.

Marine Mammals

Identification of sites and qualifying features

We provide below advice with respect to the four European sites and their marine mammal qualifying features located within Scottish waters identified for consideration under paragraph 113. Advice from Natural England should be sought with respect to the Southern North Sea SAC.

Please note Table 5.14 provides the LSE matrix for the 20 transboundary harbour porpoise sites – however there are only 19 sites described in the Table 4.3.

Pre-construction phase impact pathways

We note that there is no consideration of pre-construction activities that can emit significant underwater noise e.g. UXO clearance and some geophysical activities. Impacts will also require consideration under EPS licensing including impacts to designated sites and potentially in combination with other noisy activities depending on the noise outputs, timings and duration of works. These impacts should be considered within the application EIAR and its associated HRA rather than post-consent.

Construction phase impact pathways

We agree that **underwater noise impacts** from piling should be screened in for the three species that are qualifying features for the 4 SACs in Scottish waters, this should also include vessel noise.

Paragraph 215 refers to two designated seal haul outs (Kinghorn Rocks and Inchmickery and Cow & Calves). These sites are outwith the Firth of Forth and Eden Estuary SAC and were designated through The Protection of Seals (Designation of Haul-Out Sites) (Scotland) Order 2014 (as amended). Impacts to these sites should therefore be considered under EIA rather than HRA.

The designated seal haul-out at Fast Castle referred to in paragraph 218 does partially overlap with Berwickshire and North Northumberland Coast SAC. Impacts to grey seals using these haul outs needs to be addressed under the HRA process and we refer Berwick Bank Wind Limited to our previous Scoping advice (letter dated 07 October 2020) where we advised that the Fast Castle designated seal haul out should be screened out from the HRA, but will need consideration under the EIA. Impacts to seals using the site under the Order need to consider the offence of harassment (intentional and reckless) which relates to seals present on the actual haul-out (i.e. on land), where they are most vulnerable, rather than to the sites themselves in the absence of seals or to the neighbouring sea areas. Given the distance (some 3km to the south of the proposed landfall locations/cable route, it is unlikely that construction works at landfall or activities associated with cable installation are likely to affect any individual hauled out using this site.

Vessel collision should be screened out for all three species associated with the four European Sites located in Scottish waters.

Changes in prey availability have been considered in paragraphs 226 to 230 focussing primarily on impact to prey species from underwater noise, rather than also considering the direct impact of habitat loss from the installation of foundations, cables, scour protection etc., or how the colonisation of hard structures within soft sediment habitats influences communities and any changes (positive or negative) in prey distribution. Changes in prey availability should be screened in for all three species associated with the four European Sites located in Scottish waters.

Operation & maintenance phase impact pathways

As discussed under construction based impacts above - we don't agree that **vessel noise** impacts would result in significant disturbance impacts to either of the seal species but not to bottlenose dolphin. There is potential connectivity between all three of these sites/features and therefore underwater noise from vessels should be screened in for all three species associated with the four European Sites located in Scottish waters for the O & M phase.

Vessel collision should be screened out for all three species associated with the four European Sites located in Scottish waters for the O & M phase.

Changes in prey availability again focusses primarily on impacts to prey species from underwater noise rather than considering how the colonisation of hard structures within soft sediment habitats influences communities and any changes (positive or negative) in prey distribution. Potential for EMF effects on prey species should also be considered especially for cables associated with floating turbines. Changes in prey availability should be screened in for all three species associated with the four European Sites located in Scottish waters for the O & M phase.

We are content that direct **EMF** effects on marine mammals, and **operational noise** effects can be screened out.

Decommissioning phase impact pathways

Our advice above for construction phase impacts should also be considered for decommissioning phase activities.

In-combination effects

We agree with screening in in-combination effects as per Tables 5.9, 5.10, 5.11 and 5.13.

Ornithological features

Identification of sites and qualifying features

We are content with the initial long list for sites in Scottish waters as per Table 4.5 and the criteria used, noting a screening buffer of 4km is to be used with respect to red throated diver (paragraph 137). Using this criterion - no sites were actually screened in, instead this species is screened in through other criterion. This is consistent with our current advice, although evidence is emerging that red throated diver are displaced from windfarms at distances greater than 4km.

Site summaries are provided in paragraphs 265 – 307 detailing the seabirds, gulls and migratory waterbirds (swans, geese, ducks and wading birds) to be screened in. For Foula SPA as per paragraph 287 we note reference to great skua which has not been selected via the 'less than 10 occurrences rule' applied (paragraph 128), otherwise it would have appeared for other sites too. We suggest this is a mistake?

Consideration of functional groups for impact pathways / phases of development

We are content with the approach taken when considering impacts to particular functional groups (e.g. seabirds, gulls, geese, and migratory water birds) such that:

- i. Sites in Orkney, Shetland, and the north west of the Scottish Mainland with seabird features have been screened out as per Tables 5.6- 5.41 for all impact pathways across all phases. However, those sites with features such as kittiwake that are within mean-max foraging range + 1 SD as per Woodward et al (2019) should be screened in, at least initially.
- ii. Those sites with geese and migratory water bird qualifying features have been screened in for collision, barrier to movement and in-combination impacts during the operation and maintenance phase as per tables 5.42 – 5.55 and out for all other impact pathways for all phases. We refer BBWL to our Scoping advice.
- iii. Changes in prey availability during the construction phase have been screened in for those sites with seabird and gulls qualifying features other than those sites in i) above and out for all other sites / features. See below for advice on O & M phases impacts.
- iv. In-combination effects have been screened in for Outer Firth of Forth and St Andrews Bay Complex SPA, Firth of Forth SPA and all sites with seabird qualifying features other than i) above. And screened in for those sites with migratory geese and other waterbirds as per ii).

Where we have more bespoke advice in relation to particular sites and impacts pathways we outline these below particularly in relation to habitat loss, disturbance / displacement and changes in prey availability. These are outlined according to phase of development.

Construction phase impact pathways

Direct habitat loss is considered in paragraph 310 concluding that no significant direct loss of habitats used by seabirds or migratory birds in the marine, coastal or inland wetland environment will occur. No quantification of this loss is provided to justify this statement regardless of the temporary nature of this impact pathway during construction. We advise that the Outer Firth of Forth and St Andrews Bay Complex SPA¹ which overlaps with the cable corridor is screened in for all features so that this can be considered further even if it is then later screened out.

Disturbance and displacement are considered together (paragraphs 311 – 312). These two pathways are subtly different processes that albeit result in birds being prevented from using an area where both ultimately lead to the same lethal or sub-lethal effects. Ideally, these should be separated out as the HRA progresses, but we understand why they have been grouped together for the purpose of screening.

We suggest there is a mistake in paragraph 311 (which is repeated elsewhere in section 5) because the two potential landfall locations (Thorntonloch and Skateraw) fall immediately adjacent to the Outer Firth of Forth and St Andrews Bay Complex SPA and moreover the cable corridor route overlaps partially with this site. Construction phase disturbance and or displacement impacts therefore need to be assessed for this site and we advise that a qualitative assessment based on vessel movements and areas occupied by activity is undertaken. Disturbance / displacement effects during construction should also be considered for those sites with the following seabird qualifying features: guillemot, kittiwake, puffin, razorbill (and seabird assemblage)). As such, the following sites with these aforementioned seabird species should be screened in:

- St Abb's Head to Fast Castle, Forth Islands, Fowlsheugh, Buchan Ness to Collieston Coast, Troup, Pennan and Lion's Heads, East Caithness Cliffs and North Caithness Cliffs SPAs.
- All the qualifying features for Outer Firth of Forth and St Andrews Bay Complex SPA should also be screened in.

Operation and Maintenance (O & M) phase impact pathways

Direct habitat loss during the operation and maintenance is considered in paragraph 316 concluding that no significant direct loss of habitats used by seabirds or migratory birds in the marine, coastal or inland wetland environment. However, no quantification of the likely size of habitat loss through the presence of deposits on the seabed (foundations, cabling or protection measures) is provided particularly in relation to the Outer Firth of Forth and St Andrews Bay Complex SPA which overlaps with the cable corridor route. While this is likely to be small against the overall context of the site this information needs to be provided. As the likely habitat change will largely be considered under changes to prey availability and indirect habitat effects captured

¹On 3 December 2020, Mairi Gougeon, Minister for Rural Affairs and Natural Environment, announced the classification of twelve Special Protection Areas including this site.

through the assessment of displacement, we are content that direct habitat loss during the O & M phase can be screened out for all sites and features other than:

- The seabird qualifying features of the Outer Firth of Forth and St Andrews Bay Complex SPA.

There are a number of aspects in paragraph 316 relating to the potential for **disturbance and displacement** during the O & M phase that need to be refined. It's not strictly true to say that gannet and fulmar are not sensitive to displacement effects, as they both appear to be quite strongly displaced, but seem better able to absorb the loss of a potential foraging site (within the wind farm footprint) because they have such large foraging ranges and can therefore find alternative areas. Despite this we agree with the approach taken to screen out these features together with gulls and other migratory birds, and to screen in those sites with seabird species other than those mentioned under i) above.

With respect to **collision risk** during O & M we highlight a typo in Table 5.42 which has this impact pathway in the construction phase column rather than O & M.

We note that **changes in prey availability** have not been screened in during the O & M phase for any of the sites with seabird features as per iii) above nor have the features of the Outer Firth of Forth and St Andrews Bay Complex SPA which utilise the marine environment. We don't yet know the extent to which the introduction of hard structures to soft sediment environments will have on benthic and fish communities and the inter play across trophic levels. In line with our advice for the Scoping report we advise this impact should be screened in for:

- All of the sites with seabird qualifying features as per iii) above.
- All the qualifying features for Outer Firth of Forth and St Andrews Bay Complex SPA.

Decommissioning phase impact pathways

Our advice above for construction phase impacts should also be considered for decommissioning phase activities.

Other regulated activities

Accidental pollution

Consideration has been given in the screening document to accidental pollution. Our advice on this is that this will be subject to other regulatory control through both legislation and the requirements for contingency plans. For this reason we do not consider this should be addressed in detail within the HRA, but mention should be provided to the other mechanisms which will manage this aspect.

Water clarity / suspended sediment

Similarly, with regard to water clarity / suspended sediment during construction/ decommissioning this will depend on the type of foundation chosen and may therefore require further consideration. During the previous suite of applications, it was identified that separate marine licences may be required if gravity foundations are chosen due to the potential need for sediment for ballast.

Further information and advice

We are happy to discuss further any aspect of our advice. Please contact myself, Karen Taylor or Erica Knott in the first instance for any further advice.

Yours sincerely,

Karen Taylor

Marine Sustainability Adviser

karen.taylor@nature.scot Mobile: [Redacted]



RIVER TWEED COMMISSION THE NORTH COURT DRYGRANGE STEADING MELROSE ROXBURGHSHIRE
TD6 9DJ

TEL: EARLSTON (01896) 848294 FAX: EARLSTON (01896) 848277 EMAIL: enquiries@rtc.org.uk
Established by Order under an Act of Parliament to protect the fish stocks in the Tweed river system

15/01/2021

Letter by email

BERWICK BANK OFFSHORE WIND FARM, FIRTH OF FORTH
OFFSHORE SCOPING REPORT

Dear Emma,

Thank you for including the River Tweed Commission in your request for Scoping Opinion on the Berwick Bank Offshore Wind Farm-Habitats Regulations Appraisal Screening Report Consultation

The River Tweed Commission is charged under The Scotland Act 1998 (River Tweed) Order 2006 to do such acts, execute such works and incur such expenses as appear to it to be expedient for the protection and improvement of salmon and freshwater fisheries, and the preservation, increase and stocking of those fisheries in the River Tweed and its tributaries, and in particular with the regulation of fisheries, the removal of nuisances and obstructions and the prevention of illegal fishing. The area of jurisdiction extends five miles out to sea and includes the coastline between Cockburnspath and Holy Island. Powers are granted to the Commission to help fulfil these duties.

With reference to the statement on page 133 of the scoping report:

The timing of fish migration will therefore be an important element of the baseline characterisation and this will be collected through desktop data sources, including rod catch data from rivers on the east coast of Scotland (e.g. Tweed, Forth, Tay, Esk and Dee), recent papers (e.g. Newton et al., 2017; Gardiner et al., 2018; Godfrey et al., 2015; Malcolm et al., 2015) and Marine Scotland smolt survey data from the east coast of Scotland (Marine Scotland, 2018c). Further site-specific survey data are therefore not considered necessary to inform the baseline characterisation, as it will not provide further detail which could be applied to the impact assessment.

and the subsequent questions on page 140:



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7.2.9 SCOPING QUESTIONS TO CONSULTEES

- *Do you agree with the study areas defined for fish and shellfish ecology?*
- ***Do you agree that the existing desktop data on fish and shellfish resources in the fish and shellfish study area is sufficient to characterise the describe the ecology in the fish and shellfish baseline?***
- *Do you agree that all potential impacts (Table 7.9) have been identified for fish and shellfish ecology?*
- *Do you agree that the impacts described in Table 7.10 can be scoped out of the fish and shellfish ecology Offshore EIA Report chapter*

we have to point out in reference to the second of these questions, that the run-timing of adult salmon returning to the Tweed SAC has changed very considerably in just the last few years. Instead of September and October being the main months of return, this is now July to August. Published data sources are therefore out of date and misleading. The RTC will be happy to provide more recent, accurate, data.

Such changes have been seen before e.g. in the 1960s, the main run of returning salmon changed from Spring to Autumn and in the 1910s, it changed from Autumn to Spring.

We have no comments on the other questions.

If you require any additional information from the River Tweed Commission, please feel free to contact me directly.

Yours sincerely

Jamie Stewart
CLERK TO THE COMMISSION

Lees E (Emma)

From: Catherine Kelham <Catherine.Kelham@RSPB.ORG.UK>
Sent: 09 December 2020 15:08
To: MS Marine Renewables
Subject: Berwick Bank Offshore Wind Farm - Habitats Regulations Appraisal Screening Report Consultation - RSPB Scotland Comments

Follow Up Flag: Follow up
Flag Status: Completed

Good Afternoon,

Thank you for notifying RSPB Scotland of the submission of the HRA Screening Report for Berwick Bank OWF and inviting our comments. Please be aware, we are commenting in relation to ornithological matters only.

We have reviewed the submitted information in conjunction with SPA records available from JNCC. We consider the 509.4km marine pathway area, calculated from largest species-specific foraging range of species considered likely to feature using data from Woodward et al. (2019), is reasonable and are broadly satisfied with the 41 sites taken forward for further assessment. We note it is proposed to exclude six species (Sandwich Tern, Great Skua, Leach's storm-petrel, Manx Shearwater, Cormorant and Shag).

Overall, we consider the proposed development (alone and in combination with other plans or projects, namely other offshore wind projects including the consented Neart Na Gaoithe, Inch Cape, Seagreen Alpha and Bravo projects and the already existing cumulative impacts on gannets, kittiwakes and other bird species from those projects in the area of the proposed development) is likely to have a significant effect on European Protected Sites.

We agree that an assessment to determine the implications of the project on the identified European Sites in view of those Site's conservation objectives is required.

We look forward to being consulted on the next stages of the project.

Best wishes

Catherine

Catherine Kelham
Senior Marine Conservation Planner

Let's give nature a home in Scotland



RSPB Scotland is part of the RSPB, the UK's largest nature conservation charity, inspiring everyone to give nature a home. Together with our partners, we protect threatened birds and wildlife so our towns, coast and countryside will teem with life once again. We play a leading role in BirdLife International, a worldwide partnership of nature conservation organisations.

The Royal Society for the Protection of Birds (RSPB) is a registered charity: England and Wales no. 207076, Scotland no. SC037654



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