

Peter Morrison  
Marine Licensing  
Natural Resources Wales

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By email only to:  
[Marinelicensing@naturalresourceswales.gov.uk](mailto:Marinelicensing@naturalresourceswales.gov.uk)

Your ref: ORML2233

Dear Pete,

**MARINE AND COASTAL ACCESS ACT 2009: PART 4 MARINE LICENSING**  
**Awel y Môr offshore wind farm**

Thank you for consulting the RSPB over the proposal.

The RSPB has engaged in pre-application dialogue with Awel y Môr Offshore Wind Farm Limited (the Applicant) with regard to the Awel y Môr offshore wind farm Development Consent Order (DCO) application with a focus on ornithological-related matters. This response to the Marine Licence (ML) application follows our recent Relevant Representation (RR) submission to register our interest in the DCO Examination. The RR identifies our principal areas of concern regarding the potential effects of the DCO application on important wildlife features which are mirrored, and in part amplified, in this response. The RSPB will continue to work with the Applicant to discuss these concerns further and explore ways to resolve them during the DCO Examination and determination of the ML.

**INTRODUCTION**

The RSPB supports the deployment of renewable energy projects, providing that they are sited in appropriate places and designed to avoid potential adverse impacts on wildlife. We are grateful for the constructive pre-application discussions that have taken place with the Applicant in respect of this proposal, particularly through the Evidence Plan process.

While methodological concerns remain, progress towards resolving a number of issues was made during the pre-application discussions for this project. We continue to have significant concerns relating to the project's in-combination and cumulative collision risk and displacement impacts including their assessment.

**OFFSHORE ORNITHOLOGY IMPACTS - SUMMARY OF RSPB POSITION**

We have significant concerns regarding the findings of some of the impact assessments. As a result of the methodological concerns, set out below, the RSPB considers that the impacts have not been adequately assessed and, as such consider that an adverse effect on the integrity (AEOI) on the following qualifying feature of the Liverpool Bay Special Protection Area (SPA) cannot be ruled out:

*Project alone – RSPB AEOI conclusions*

Impact on the following feature of the Liverpool Bay SPA:

- The impact of displacement on the red throated diver population

*Project in combination with other plans and projects – RSPB AEOI conclusions*

In-combination impacts on the following feature of the Liverpool Bay SPA:

- The impact of displacement on the red throated diver population

We also have methodological concerns and consider that it is not currently possible to rule out adverse impacts upon other SPA species occurring within the study area, in particular:

- Manx shearwater
- Gannet

#### RED THROATED DIVER DISPLACEMENT

The conservation objectives for the Liverpool Bay SPA are<sup>1</sup>:

*Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:*

- *The extent and distribution of the habitats of the qualifying features*
- *The structure and function of the habitats of the qualifying features*
- *The supporting processes on which the habitats of the qualifying features rely*
- *The population of each of the qualifying features, and,*
- *The distribution of the qualifying features within the site.*

There is clear evidence of the displacement of red-throated diver from offshore wind farms (e.g. Furness et al. 2013<sup>2</sup>, Mendel et al., 2019<sup>3</sup>) with a significant effect detectable 10-15km from the wind farm (Heinänen et al. 2020<sup>4</sup>). The Awel y Môr proposed development directly abuts the Liverpool Bay SPA. The numbers of red throated diver, their distribution within the SPA and their ability to use all suitable habitat contained in the SPA are relevant to the SPA conservation objectives but are not considered by the Applicant. If red throated diver are displaced from part of the SPA which would otherwise be suitable for them the effect is to reduce the functional size of the SPA, contravening the conservation objectives. The RSPB therefore cannot rule out the impact of displacement on the integrity of the Liverpool Bay SPA, arising through the project alone and in combination.

#### OTHER SPA SPECIES OF CONCERN PRESENT ON SITE

Manx shearwater are BoCC5 Amber listed (Stanbury et al., 2021<sup>5</sup>) and are a Birds Directive Migratory Species. Awel y Môr is within the mean-max foraging range 1,347 km, (Woodward et al., 2019<sup>6</sup>) of six SPAs of which they are a qualifying feature (Copeland Islands, Irish Sea Front, Rum, St Kilda/Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island, and Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro).

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<sup>1</sup> European Site Conservation Objectives for Liverpool Bay / Bae Lerpwl SPA – UK9020294 (naturalengland.org.uk)

<sup>2</sup> Furness, R. W., Wade, H. M., & Masden, E. A. (2013). Assessing vulnerability of marine bird populations to offshore wind farms. *Journal of environmental management*, 119, 56-66.

<sup>3</sup> Mendel, B., Schwemmer, P., Peschko, V., Müller, S., Schwemmer, H., Mercker, M., & Garthe, S. (2019). Operational offshore wind farms and associated ship traffic cause profound changes in distribution patterns of Loons (*Gavia spp.*). *Journal of environmental management*, 231, 429-438

<sup>4</sup> Heinänen, S., Žydelis, R., Kleinschmidt, B., Dorsch, M., Burger, C., Morkūnas, J., Quillfeldt, P. and Nehls, G., 2020. Satellite telemetry and digital aerial surveys show strong displacement of red-throated divers (*Gavia stellata*) from offshore wind farms. *Marine environmental research*, 160, p.104989.

<sup>5</sup> Stanbury, A.J., Eaton, M.A., Aebischer, N.J., Balmer, D., Brown, A.F., Douse, A., Lindley, P., McCulloch, N., Noble, D.G. & Win, I. (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114:723-747

<sup>6</sup> Woodward, I., Thaxter, C.B., Owen, E. & Cook, A.S.C.P. 2019. Desk-based revision of seabird foraging ranges used for HRA screening, Report of work carried out by the British Trust for Ornithology on behalf of NIRAS and The Crown Estate, ISBN978-1-912642-12-0

Gannet is Amber listed in BoCC5 (Stanbury et al., 2021). Gannet is a qualifying feature of Grassholm SPA and also known to breed in Ireland's Eye SPA and Lambay Island SPA, all of which are within mean-max foraging range of Awel y Môr (Woodward et al., 2019).

#### IMPACT ASSESSMENT – METHODOLOGICAL CONCERNS

The RSPB's key concerns are with the baseline survey methodology, the scoping out of collision impacts for Manx shearwater, the use of avoidance rates in gannet collision risk modelling, lack of consideration of impacts compounded by Highly Pathogenic Avian Influenza (HPAI).

##### Baseline surveys

The RSPB are content that digital aerial surveys can provide useful data in order to provide baseline characterisation of an offshore wind farm footprint. However full methodological detail needs to be provided alongside the outputs and the details the Applicant has provided are scant. In particular, but not exclusively there is

- insufficient consideration of potential biases in the survey and analysis methods
- there is no consideration of potential response of birds to disturbance arising from the survey e.g. from aircraft shadow
- there is no detail provided as to how autocorrelation has been evaluated and if necessary accounted for
- there is no rationale provided as to why a grid rather than transect survey design has been used
- there is no detail given of any independent validation of identification and detection rates

##### Manx shearwater

The Applicant has scoped out Manx Shearwater as being a receptor at risk of collision impacts. We disagree with this approach and consider there to be risk of collision. Fundamental to the consideration of collision risk for this species is the extent to which nocturnally active seabirds, such as Manx shearwaters, may be attracted to the illuminations required for turbines, support vessels and the construction or expansion of ports. Such attraction will cause behaviour change, which could in turn increase collision risk, for example if birds fly higher when attracted to lights.

There is also abundant evidence of light-induced disorientation of Manx shearwaters. This evidence includes the grounding of fledglings in lit areas (Miles et al., 2010<sup>7</sup>) and collision with lighthouses and other illuminated structures (Guilford et al., 2019<sup>8</sup>, Archer et al., 2015<sup>9</sup>). If light-induced disorientation leads to individual birds circling the navigation lights on the nacelle or tower of turbines for protracted periods (as has been reported for birds disorientated by lighthouses or gas flares) the probability of collision with turbine blades or other surfaces is vastly increased.

Such light induced behavioural change invalidates the simplistic assumptions of bird behaviour in the vicinity of turbines of the Band CRM. For example, the model assumes that birds will fly at a fixed height and speed once through the rotor swept area, in a direction perpendicular to the turbine blades. Light-induced changes in flight height, disorientation and circling flight behaviour mean that this assumption would not be met.

Manx shearwater can be active throughout the day and night and with different levels of activity at different times. For example for birds tracked from Skomer, diving occurred during the day and

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<sup>7</sup> Miles, W., Money, S., Luxmoore, R. & Furness, R. W. 2010. Effects of artificial lights and moonlight on petrels at St Kilda. *Bird Study*, 57, 244-251.

<sup>8</sup> Guilford, T., Padget, O., Bond, S. & Syposz, M. 2019. Light pollution causes object collisions during local nocturnal manoeuvring flight by adult Manx Shearwaters *Puffinus puffinus*. *Seabird*, 31, 48-55

<sup>9</sup> Archer, M., Jones, P. H. & Stansfield, S. D. 2015. Departure of Manx Shearwater *Puffinus puffinus* fledglings from Bardsey, Gwynedd, Wales, 1998 to 2013. *Seabird*, 28, 43-47

peaked in the evening (Shoji et al., 2016<sup>10</sup>), while nocturnal foraging was observed from tracking of birds from High Island, Ireland (Kane et al., 2020<sup>11</sup>). These diel variations in activity mean that the somewhat limited amount of time aerial surveys were carried out, restricted to the hours of full light are unlikely to properly characterise the activity of Manx shearwater at the Application site. These have generally taken place between mid-morning and mid-afternoon. For these reasons the RSPB does not have confidence in the baseline densities of Manx shearwater presented, and therefore it is impossible to make any conclusions as to the significance of impacts.

### Gannet

#### Avoidance Rates:

For collision risk modelling, the Applicant has presented Avoidance Rates as recommended by the SNCBs (JNCC et al, 2014<sup>12</sup>) Whilst the RSPB agrees with almost all of the SNCB's recommended rates, we differ with regard to gannet. We are content that 98.9% is suitable for non-breeding birds, but do not agree that this figure should be applied to the breeding season due to the lack of available evidence relating to breeding birds. Furthermore, GPS tracking of gannets breeding on the Bass Rock has shown variation in the two-dimensional foraging behaviour of birds across the breeding season (prior to chick-rearing, and during chick-rearing), between sexes, and between years (Cleasby et al. 2015a<sup>13</sup>, Lane et al. 2020<sup>14</sup>, Lane and Hamer 2021<sup>15</sup>). Three-dimensional tracking of gannets during chick-rearing has revealed that flight height and flight speed both vary according to behaviour, sex and wind conditions (Cleasby et al. 2015b<sup>16</sup>, Lane et al. 2019<sup>17</sup>, Lane et al. 2020,) and similar patterns have been recorded in other seabirds (Masden et al. 2021<sup>18</sup>). As the misspecification of these parameters contributes to the model error component of avoidance rate (Johnston et al., 2021<sup>19</sup>) such variability should result in differential avoidance rates. As such we recommend the use of the default seabird avoidance rate of 98% for gannet during the breeding season.

The Applicant has also, in Appendix 4 of Volume 4, Annex 4.3: Offshore Ornithology Collision Risk Modelling reduced the density of birds inputted into collision risk modelling by 70% to take into account macro avoidance. This approach follows suggestions in Cook (2021<sup>20</sup>), the recommendations from which have not yet been adopted by the SNCBs. Cook (2021) is currently being reviewed and

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<sup>10</sup> Shoji, A., Aris-Brosou, S., Owen, E. et al. Foraging flexibility and search patterns are unlinked during breeding in a free-ranging seabird. *Mar Biol* 163, 72 (2016).

<sup>11</sup> Kane A, Pirotta E, Wischniewski S, Critchley EJ, Bennison A, Jessopp M, Quinn JL (2020) Spatio-temporal patterns of foraging behaviour in a wide-ranging seabird reveal the role of primary productivity in locating prey. *Mar Ecol Prog Ser* 646:175-188.

<sup>12</sup> Joint Nature Conservation Committee (JNCC), Natural England (NE), Natural Resource Wales (NRW), Northern Ireland Environment Agency (NIEA), Scottish Natural Heritage (SNH) 2014, Joint Response from the Statutory Nature Conservation Bodies to the Marine Scotland Science Avoidance Rate Review

<sup>13</sup> Cleasby, I.R., Wakefield, E.D., Bodey, T.W., Davies, R.D., Patrick, S.C., Newton, J., Votier, S.C., Bearhop, S., Hamer, K.C. 2015a. Sexual segregation in a wide-ranging marine predator is a consequence of habitat selection. *Marine Ecology Progress Series*, 518, 1-12

<sup>14</sup> Lane, J.V., Jeavons, R., Deakin, Z., Sherley, R.B., Pollock, C.J., Wanless, R.J., Hamer, K. C., 2020. Vulnerability of northern gannets to offshore wind farms; seasonal and sex-specific collision risk and demographic consequences. *Marine Environmental Research*. 162

<sup>15</sup> Lane, J.V. and Hamer, K.C. 2021. Annual adult survival and foraging of gannets at Bass Rock, Scotland: Report to the Ornithology subgroup of the Forth and Tay Regional Advisory Group (FTRAG-O) – October 2021

<sup>16</sup> Cleasby, I.R., Wakefield, E.D., Bearhop, S., Bodey, T.W., Votier, S.C., Hamer, K.C., 2015b. Three-dimensional tracking of a wide-ranging marine predator: flight heights and vulnerability to offshore wind farms. *Journal of Applied Ecology*, 52, 1474–1482.

<sup>17</sup> Lane, J.V., Spracklen, D.V., Hamer, K.C., 2019. Effects of windscape on three-dimensional foraging behaviour in a wide-ranging marine predator, the northern gannet. *Marine Ecology Progress Series*, 628, 183–193.

<sup>18</sup> Masden, E. A., Cook, A. S., McCluskie, A., Bouten, W., Burton, N. H., & Thaxter, C. B. (2021). When speed matters: The importance of flight speed in an avian collision risk model. *Environmental Impact Assessment Review*, 90, 106622.

<sup>19</sup> Johnston, D.T., Thaxter, C.B., Boersch-Supan, P.H., Humphreys, E.M., Bouten, W., Clewley, G.D., Scragg, E.S., Masden, E.A., Barber, L.B., Conway, G.J., Clark, N.A., Burton, N.H.K., Cook, A.S.C.P. (2021) Investigating avoidance and attraction responses in lesser black-backed gulls *Larus fuscus* to offshore wind farms. *Marine Ecology Progress Series*, prepress online

<sup>20</sup> Cook A.S.C.P. (2021) Additional analysis to inform SNCB recommendations regarding collision risk modelling. BTO research report 739

revised by two projects, one funded by JNCC and one by Natural England. Until these projects have reported, the RSPB do not accept this approach.

### Highly Pathogenic Avian Influenza (HPAI)

A new virulent form of bird flu, Highly Pathogenic Avian Influenza (HPAI), that originated in poultry in east Asia has now killed tens of thousands of wild birds in the UK and around the world. First confirmed in Britain during winter 2021/22, it has had major impacts on populations of seabirds across Scotland, and there have been an increasing number of confirmed cases appearing across England, including east coast seabird colonies. At the Farne Islands in Northumberland, thousands of seabirds have died. Confirmed cases have also been recorded in Wales. At Grassholm SPA gannetry it has now been confirmed in a number of specimens from dead gannets and birds are continuing to die.

It is currently unclear what the population scale impacts of the outbreak will be, but it is likely that they will be severe. This year's outbreak at the Bass Rock gannetry has coincided with, and is the likely cause of, greater than 90% nest failure. This scale of impact means that seabird populations will be much less robust to any additional mortality arising from offshore wind farm developments. It also means that there may need to be a reassessment of whether SPA populations are in Favourable Conservation Status. With such uncertainty as to the future of these populations, there is the need for a high level of precaution to be included in examination of impacts arising from the proposed development

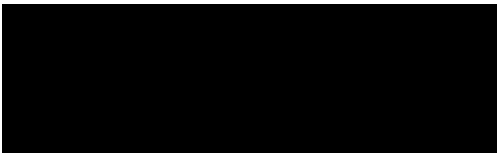
### Population Viability Analysis

The Applicant did not carry out Population Viability Analysis for gannet. The RSPB would prefer that this was now carried out, to take into account the likely mortality arising from the outbreak of Highly Pathogenic Avian Influenza on the local and regional populations

Finally, the RSPB reserves the right to add to and/or amend its position in light of changes to or any new information submitted by the Applicant.

We hope that these comments are helpful. Please do not hesitate to get in touch should you wish to discuss any of the points raised in this letter in further detail.

Yours faithfully,



Simon Hugheston-Roberts  
Conservation Officer (Casework)

Swyddfa Gogledd Cymru  
Uned 14, Llys Castan  
Ffordd Y Parc  
Parc Menai  
Bangor  
Gwynedd LL57 4FD

North Wales Office  
Unit 14, Llys Castan  
Ffordd Y Parc  
Parc Menai  
Bangor  
Gwynedd LL57 4FD

Tel/Ffôn 01248 672850  
Fax/Ffacs 01248 676767



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