LLŶR FLOATING OFFSHORE WIND PROJECT

Llŷr 1 Floating Offshore Wind Farm

Environmental Statement

Volume 6: Appendix 5B – Scoping Opinion

August 2024

Prepared by: Llŷr Floating Wind Ltd

FLOVENTIS ENERGY

Document Status

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Approval for Issue

Prepared by	AECOM
Prepared for	Llŷr Floating Wind Limited
Approved by	Jay Hilton-Miller

Glossary of project terms

Term	Definition
The Applicant	The developer of the Project, Llŷr Floating Wind Limited.
Array	All wind turbine generators, inter array cables, mooring lines, floating sub-structures and supporting subsea infrastructure within the Array Area, as defined, when considered collectively, excluding the offshore export cable(s).
Array Area	The area within which the wind turbine generators, inter array cables, mooring lines, floating sub-structures and supporting subsea infrastructure will be located.
Floventis Energy	A joint venture company between Cierco Ltd and SBM Offshore Ltd of which Llŷr Floating Wind Limited is a wholly owned subsidiary.
Landfall	The location where the offshore export cable(s) from the Array Area, as defined, are brought onshore and connected to the onshore export cables (as defined) via the transition joint bays.
Llŷr 1	The proposed Project, for which the Applicant is applying for Section 36 and Marine Licence consents. Including all offshore and onshore infrastructure and activities, and all project phases.
Marine Licence	A licence required under the Marine and Coastal Access Act 2009 for marine works which is administered by Natural Resources Wales (NRW) Marine Licensing Team on behalf of the Welsh Ministers.
Offshore Development Area	The footprint of the offshore infrastructure and associated temporary works, comprised of the Array Area and the Offshore Export Cable Corridor, as defined, that forms the offshore boundary for the S36 Consent and Marine Licence application.
Offshore Export Cable	The cable(s) that transmit electricity produced by the WTGs to landfall.
Offshore Export Cable Corridor (OfECC)	The area within which the offshore export cable circuit(s) will be located, from the Array Area to the Landfall.
Onshore Development Area	The footprint of the onshore infrastructure and associated temporary works, comprised of the Onshore Export Cable Corridor and the Onshore Substation, as defined, and including new access routes and visibility splays, that forms the onshore boundary for the planning application.
Onshore Export Cable(s)	The cable(s) that transmit electricity from the landfall to the onshore substation.
Onshore Export Cable Corridor (OnECC)	The area within which the onshore export cable circuit(s) will be located.
proposed Project	All aspects of the Llŷr 1 development (i.e. the onshore and offshore components).
Onshore Substation	Located within the Onshore Development Area, converts high voltage generated electricity into low voltage electricity that can be used for the grid and domestic consumption.
Section 36 consent	Consent to construct and operate an offshore generating station, under Section 36 (S.36) of the Electricity Act 1989. This includes deemed planning permission for onshore works.

Cyfoeth Naturiol Cymru
Natural Resources Wales

Ein cyf/Our ref: SC2202

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5th July 2022

Dear Marc Murray,

SCREENING AND SCOPING OPINION UNDER THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007 (as amended)

LLYR FLOATING OFFSHORE WIND PROJECT

I am writing further to your request for a screening and scoping opinion, dated 06 April 2022, made in accordance with The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) ("The Regulations").

The purpose of the Environmental Impact Assessment (EIA) screening procedure is to determine whether the proposed works require an EIA and submission of an Environmental Statement (ES). The purpose of the scoping procedure is to determine what information should be provided in the ES.

In reaching our Screening Opinion we have considered the proposed works against Schedule A1 and A2 of the above regulations. In reaching our scoping opinion we have had regard to the information provided in the "Llŷr floating offshore wind project Scoping Report", dated April 2022, and considered the requirements of Schedule 3 of the Marine Works Regulations. We have also consulted with the bodies that we consider have an interest in the project by reason of their environmental responsibilities, or local or regional competences, as required by the above regulations, and had regard to their comments.

Screening Opinion

It is our opinion that the works fall within the categories of projects listed within Schedule A2, paragraph 21 of the above regulations (see below), and therefore must be considered in terms of its size, nature and location having regard to the relevant criteria listed in Schedule 1 of the above regulations.

> ***21.*** *Installations for the harnessing of wind power for energy production (wind farms).*

We have carefully considered the views of the consultation bodies alongside the criteria as set out in Schedule 1 of the regulations, and have determined, based on the information provided, that the project has the potential to have a significant effect on the environment and therefore a statutory EIA is required.

We have come to this conclusion on the basis of the likely significant impacts due to the nature and scale of the project, specifically, but not limited to, the potential impacts on ornithology features and the proximity of the project to the Skomer, Skokholm and the Seas off Pembrokeshire SPA as well as impacts to marine mammals, ornithology, benthic ecology, and fisheries/navigation.

Scoping Opinion

This letter sets out the additional information that we consider necessary to be included and/or assessed in the ES for this Project.

Please note our scoping opinion is based on the information available to us at this time. The information provided is not a definitive list of the ES / EIA requirements and further information may be required following an application for this project, to ensure a full assessment is carried out.

This Screening and Scoping Opinion will be provided to all those bodies that were consulted and will be publicised on our website and on our Public Register.

The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended)

Scoping Opinion (SC2202)

Summary of the proposal

Floventis Energy is developing proposals for two 100 megawatt (MW) floating offshore wind development projects (200 MW in total) in the Celtic Sea, known as Llŷr 1 and Llŷr 2.

The proposed Project will comprise of the following main components:

- Wind turbines, with a rating of between 12 and 20 MW per turbine;
- Floating offshore wind platforms and associated moorings;
- Offshore inter-array cables and up to one subsea connection point per project;
- Up to two electricity export cables per project following the same route to the landfall;
- Up to one transition joint bay / riser per project to connect the offshore cable to the onshore cable;
- Onshore cabling between the landfall and the grid connection;
- Onshore substation / control building near to the grid connection point; and
- Other associate infrastructure, such as navigational buoys.

Location

The proposed Project will be located in the Celtic Sea, within Welsh Waters, offshore from the Pembrokeshire coastline at approximately 38km from the Lundy Island shore and 31km from the Welsh coastline.

The proposed Project consists of two adjacent array areas, known as Llŷr 1 and Llŷr 2, with an initial outline area of interest of 50km^2, which will be refined through the EIA and design process.

Consultation Responses Received

In considering the scoping report, NRW Permitting Services (NRW PS) consulted with various consultation bodies. The consultation bodies that responded are listed below:

- Natural Resources Wales Technical Experts (NRW TE)
- Royal Yachting Association (RYA)
- Trinity House Lighthouse Service (THLS)
- Dyfed Archaeological Trust (DAT)
- Pembrokeshire County Council Planning Authority (PCC LPA)
- Pembrokeshire Coast National Park Authority (PC NPA)
- Cadw
- Joint Nature Conservation Committee (JNCC)
- National Air Traffic Service (NATS)
- National Federation of Fishermen's Organisation (NFFO)

- Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW)
- Royal Society for the Protection of Birds (RSPB)

0. General comments

0.1. Marine and coastal guidance produced by NRW that will provide useful information to help with your project is available here: https://naturalresources.wales/guidance-and-advice/business-sectors/marine/?lang=en

0.2. The ES submitted should demonstrate consideration of the points raised in this scoping opinion. It is recommended that a table is provided in the ES summarising the scoping opinion comments and how they are addressed in the ES.

0.3. The EIA must be undertaken by a competent person and the ES must include a competent expert statement.

0.4. Where possible, other environmental assessments should be coordinated with the EIA process. However, it is important to note that the Habitats Regulations Assessment (HRA) and Water Framework Directive assessment (WFD), and any other assessment, are separate processes to the EIA.

0.5. Throughout the ES robust evidence should be presented so that the potential environmental impacts can be properly understood and evaluated; and appropriate measures identified to avoid, reduce or where necessary compensate for those impacts.

0.6. The ES must include:

- A Non-Technical Summary (NTS);
- A chart or map identifying where the activity will be carried out;
- A description of the likely significant effects of the project, whether direct, indirect, secondary, cumulative, transboundary, short-term, medium-term, long-term, permanent, temporary, positive and negative;
- A description of the methods used to make the assessment of the significant effects and difficulties encountered in compiling the information and uncertainties involved;
- A description of measures to avoid, prevent, reduce or offset identified significant adverse effects and proposed monitoring arrangements; &
- A description of the expected significant adverse effects of the project on the environment resulting from the vulnerability of the project to risks of major accidents or disasters.

0.7. The ES must consider any potential transboundary impacts where appropriate.

0.8. Early engagement with relevant stakeholders is encouraged. You are able to obtain further advice from NRW TE through the NRW Discretionary Advice Service, please see here: https://naturalresources.wales/guidance-and-advice/business-

sectors/planning-and-development/advice-for-developers/our-service-to-developers/

0.9. We would encourage you to engage with the appropriate SNCBs for advice on nature conservation matters within their specific statutory responsibilities: JNCC for offshore (beyond 12nm) and NRW TE for territorial limit (onshore to 12nm).

0.10. We request that clarification is provided in all future documentation as to whether potential impacts will occur within territorial or offshore waters (within or beyond 12nm) . This should include the provision of the 12nm boundary on all maps produced to support the application.

0.11. The UK left the EU on 31 January 2020 – all legal obligations relating to compliance with environmental licences/permits and legislation will continue to apply. NRW on behalf of Welsh Ministers will continue to issue licenses in line with our current practice.

0.12. You must ensure that reference is made to and consideration of compliance with the UK Marine Policy Statement and the Welsh National Marine Plan and its associated policies within the submitted ES, alongside any further regional planning documentation. The published Welsh National Marine Plan (WNMP) can be found here: https://gov.wales/welsh-national-marine-plan-document. Implementation guidance for the Welsh National Marine Plan can also be found here: https://gov.wales/welsh-national-marine-plan-implementation-guidance.

0.13. The use of the title “Likely Significant Effects” in the report is confusing. Potential impact pathways to be considered in the EIA seem to be confused with the term likely significant effect which has significant meaning in the HRA process.

0.14. NRW TE would encourage you to use the NRW guidance that has previously been provided to inform project-level considerations and assessments (included in NRW TE email of 30 March 2022).

0.15. NRW TE advises you to ensure all permits/consents/licences relevant to the proposed project are secured. Upon receipt of detailed survey information, NRW TE will be able to provide advice on the risk of the proposal to protected species, and whether any European Protected Species (EPS) licences are required.

0.16. PC NPA reminds you that policy SOC_06 Designated landscapes (WNMP) requires proposals to demonstrate how potential impacts on the purposes and special qualities for which National Parks have been designated have been taken into consideration. These should, in order of preference:

- avoid adverse impacts on designated landscapes; and/or
- minimise impacts where they cannot be avoided; and/or
- mitigate impacts where they cannot be minimised.

The policy also states that opportunities to enhance designated landscapes are encouraged. Special qualities of Pembrokeshire Coast National Park include seascape, landscape, biodiversity, tranquillity, and wildness. Were the development

to proceed, Pembrokeshire Coast National Park Authority would anticipate that there would be residual adverse impacts, in which case mitigation would be required.

0.17. Concerns have been raised within the wider floating wind industry as to how the issue of wet storage areas is considered within the EIA (The fourth element of floating wind consents - PES - Power & Energy Solution). Fully constructed floating turbines or those awaiting/needing service could require storage adjacent to the coast or in port areas before being towed out to site (expected to be done in batches during good weather conditions). These wet storage areas will need to be adequately assessed in terms of impacts on birds, visual impacts, navigational risks, etc. Moreover, since there are currently no ports with the capacity for constructing and servicing these types of turbines, these might be floated from/to far away increasing the risk of spreading INNS, collision, and transboundary impacts. These risks should be considered, if necessary, in the EIA process.

1. Volume 1: The Proposed Project

(1) Introduction

1.1. No comments were received on this topic

(2) Regulatory and Planning Policy Context

1.2. No comments were received on this topic

(3) Site Selection

1.3. No comments were received on this topic

(4) Description of the Project

1.4. We would encourage you to engage early with relevant stakeholders to identify locations of minimal impact to decide on the export cable route and grid connection.

1.5. The PCC LPA highlights that the number of projects that would all involve the delivery west-east cable routes (within a relatively wide “development corridor”) across the Angle Peninsula and significant infrastructure near Pembroke Power Station (sub or converter stations for each project) would result in an extended impact timeframe during construction. The PCC encourage you to work with these other projects to minimise the combined duration of these works.

1.6. JNCC note that in Section 4.2.5 Electricity Export Cable it states that there will be “up to two 132 kV cables per project”. Section 4.2.5 then goes on to state that “the two cables for the projects will be laid in separate trenches with a cable separation of around 50m”. It is unclear to JNCC whether this applies to a scenario where each project requires one or two 132 kV cables. We would request clarity on this matter.

1.7. JNCC encourages you to minimise the amount of scour/rock protection required, acknowledging that the quantities are still unknown. The introduction of hard substrate into a mainly sedimentary environment is undesirable although it is not necessarily considered as having a significant impact in this point. JNCC note that

the long-term effect of the introduction of substratum into naturally sandy or muddy seabed is not fully understood at present and should be carefully considered by the regulators. Where stabilisation material cannot be avoided, JNCC recommend using a more targeted placement method e.g., fall pipe vessel rather than using vessel-side discharge methods.

1.8. In conjunction with the information to be gathered on the proposed offshore array and export cable corridor through survey work, JNCC highlight that it would be helpful to have details on the following technical aspects relating to the installation and operation of the Project:

- Footprint of area affected by laying of the export cables;
- Footprint of area affected by export cable protection;
- Footprint of area affected by inter-array electrical cables;
- Footprint of area affected by inter-array cable protection;
- Estimation of electromagnetic fields (EMF) potentially arising from cables both at exterior of cables and at surface of seabed above buried cables;
- Footprint of area affected by placement of drag embedment anchors;
- Footprint of area affected by mooring lines;
- Duration and rate of cable-laying;
- Number and types of vessels to be used in cable-laying operations;
- Routes of vessels for cable works.

1.9. JNCC note that route clearance activities (Section 4.4.1.2) may include pre-sweeping of sandwaves and advise that modification/removal of sandwaves would result in temporary disturbance of the seabed and changes to patterns of sediment transport resulting in morphological change. JNCC would also like to highlight that any disturbed sediment resulting from these activities should be retained within the same sediment system.

1.10. JNCC indicates that any material disturbed through cable installation activities (section 4.4.1.4) such as ploughing or trenching should be maintained within the same sediment system, for example depositing the disturbed sediment up stream of the trenches to encourage natural backfill.

1.11. NRW PS strongly advise that you engage early with SNCBs to review and refine the export cable route corridor and landfall options (4.2 and 4.3), to avoid and mitigate environmental impacts, through a clear site selection process. Of particular concern is the potential for the cable route to interact with sensitive features (Annex 1 habitats) of the Pembrokeshire Marine Special Area of Conservation (SAC). Clarity is required as to whether alternative cable routes have been considered as part of the process.

1.12. NRW TE advise that in addition to the key guidance materials cited, you also consider NRW's advice note for offshore cabling in assessment processes ("*Sensitivity of marine ecology receptors to cabling activities in Wales*" https://www.marinedataexchange.co.uk/details/1710/2019-natural-resources-

wales-sensitivity-of-marine-ecology-receptors-to-cabling-activities-in-wales/summary). NRW TE recommends that The Crown Estate's Cable Route Protocol (https://www.thecrownestate.co.uk/media/3994/the-crown-estate-cable-route-identification-leasing-guidelines.pdf) is also referenced and considered as well as considerations highlighted within the relevant National Policy Statements (see point 3.1).

1.13. NRW TE strongly encourage use of HDD where possible for the cable installation at landfall as the least environmentally damaging option, given the potential environmental impacts of trenching on conservation features.

1.14. It is NRW TE's position that in the absence of understanding future environmental conditions, all decommissioning options are considered (section 4.4.2); including the complete removal of installed infrastructure. This includes not only the buried cable, but all cable protection measures employed over the course of the project. We endorse Natural England's advice on scour and cable protection (http://nepubprod.appspot.com/publication/5938793965420544) which recommends that for future projects requiring scour protection, developers consider solutions that produce minimal to no negative environmental impact to the seabed, and therefore can remain in place at the end of the project as evidence suggests this is the most cost effective and sustainable approach.

1.15. NRW TE advice that the ES should consider the maximum number of cable repairs (section 4.4.3.2) predicted to occur during the operation of the project as the worst-case scenario (Rochdale Envelope) to assess the potential impacts. This should include the potential for cable protection to be required following cable repairs.

(5) EIA Approach and Methodologies

1.16. NRW recommend determining the landfall site and cable route before submission in order to inform the proposal further. We acknowledge the use of the Rochdale Envelope to assess worst case scenario but seek to encourage you to define the project as much as it is possible to avoid unnecessary delays.

1.17. There is a requirement to assess the potential transboundary impacts on another country within the European Economic Area. The potential for transboundary impacts will need to be considered within project–level assessments.

1.18. NRW TE generally agree with value/sensitivity and magnitude criteria applied on Table 5-1 to 5-4, however, the value/sensitivity category should be refined according to the level of protection of the feature, for example, under The Conservation of Habitats and Species Regulations 2017, Environment (Wales) Act 2016, or OSPAR Convention.

1.19. NRW TE points out that the Zone of Influence (ZoI) must be defined based on robust evidence and any protected site (HRA) or water body (WFD) where there are (a) direct effects (e.g. host the export cable corridor) or (b) there is a pathway for effect (e.g. biotic or migratory routes) must be adequately considered.

1.20. In terms of mitigation, NRW TE points out that the proper process for consideration of mitigation in the context of the WFD, is to scope any potential effects

in to the detailed assessment stage and then consider mitigation, once the impacts have been adequately defined.

(6) Approach to the Environmental Statement

1.21. It is noted that in the scoping report 'Water Quality' is split by marine works and terrestrial works. NRW TE advise that in compiling the ES, marine water quality falls under its own section.

1.22. Clarity is sought with respect to how the WFD Assessment will be provided as part of the wider EIA package. Section 5.4.3 states that there will be a stand-alone WFD assessment; however, this is not included within the proposed structure of the ES (Section 6.1). Furthermore, WFD is discussed within Chapter 19, but not within the relevant elements Chapter 20 or 21. Since no scoping information specific to WFD has been provided, NRW TE advise that, where relevant, all potential impact pathways identified as part of the EIA process are transposed into the WFD Assessment. This assessment will need to be made in terms of potential project effects on the WFD quality elements at a water-body level and to identify potential pathways for effect between elements also (e.g., hydrodynamic changes may affect biological elements)

1.23. The RCAHMW indicates that the separation of the marine (Chapter 24) and intertidal zone (Chapter 9) is understandable from a purely geographical definition of the marine baseline lying at the low-water mark. However, the nature of the archaeological material likely to be located between high and low water has more in common with marine archaeology, than terrestrial archaeology. For the purpose of the EIA/ES, we would therefore recommend combining the intertidal elements with the marine elements, to give coverage from high water out, and leaving the terrestrial coverage (Chapter 9) to be purely concerned with historic assets above the high water mark.

1.24. NRW TE advise that a revised structure for the ES is considered, as the structure as currently proposed is not considered facilitative to the reader. NRW TE are happy to work with you on this.

1.25. Currently, insufficient information has been provided to assess the risk of the proposal against the protected site features (Section 6.4). Sufficient information will need to be provided at the point of submission. As reference of requirements, NRW TE highlights best practice included in NRW's species licensing website.

1.26. NRW TE considers that by satisfying the requirements regarding the SACs, under the HRA, it is likely the requirements for the SSSIs will also be met. However, NRW TE refer you to NRW's Development works within sites of special scientific interest page on the website (https://naturalresources.wales/guidance-and-advice/business-sectors/planning-and-development/advice-for-developers/development-works-within-sites-of-special-scientific-interest/?lang=en) for further advice.

1.27. NRW TE welcome the use of a Construction Environmental Management Plan (CEMP) and request the opportunity to review the document once produced.

However, NRW TE advise you to refer to relevant Guidance for Pollution Prevention, including GPP5 Works and Maintenance in or near water.

2. Volume 2: Terrestrial

2.1. NRW TE indicates that their advice is limited to the information available in the report presented; as the scoping report acknowledges that generally, insufficient information has yet been gathered on the project. Examples are:

- The detail of the proposed wind turbines, their floating pontoons, and the site layout, as these are still in the process of being tested. We will require this information, to assess the visual impact of the proposal, and to assess any impacts of the development on its proposed location.
- A detailed method statement explaining how the project will be transported to its location.
- Currently, it hasn't been decided how the cables will cross the land from the grid connection to the proposed wind farm. Three options are being considered, but the location will be agreed via an application through the grid.

2.2. NRW TE have concerns with the application as submitted because inadequate information has been provided in support of the proposal. To overcome these concerns, NRW TE advise that further information is provided with respect to flood risk, protected sites, protected species, sea and landscape, and ground contamination.

2.3. NRW TE notices that there is an error in the numbering of sections in Section 4.4.1.9 on page 49 and page 50 section 4.4.3.1. It is not clear whether there is a missing section that should be available for consideration.

2.4. As stated above, the PCC LPA stresses the large number of projects that would all involve the delivery west-east cable routes across the Angle Peninsula and Pembroke Power Station (sub or converter stations for each project). PCC LPA refers particularly to the Greenlink (under construction), Erebus (applications under the Electricity Act and Marine and Coastal Access Act awaiting determination), and Valorous (EIA Scoping request submitted to NRW February 2021) projects. PCC indicates that has previously advised of the need for an integrated approach to delivery.

(7) Seascape, Landscape and Visual

2.5. The PC NPA indicates that the proposal has potential for adverse seascape, landscape, and visual impacts on the Pembrokeshire Coast National Park.

2.6. PCC LPA considers that two visualisations are limited and one more viewpoint should be provided from Goldborough Road (Chapter 7).

2.7. NRW TE considers that NRW LANDMAP all-Wales evidence base should also be referred to with regard to the landfall, cable route and substation proposals. NRW has produced Guidance Note GN46 Using LANDMAP in Landscape and Visual Impact Assessment (https://naturalresources.wales/guidance-and-advice/business-

sectors/planning-and-development/evidence-to-inform-development-planning/using-landmap-in-landscape-and-visual-impact-assessments-gn46/?lang=en).

2.8. Account should be taken of NRW's evidence reports on Offshore Wind Development: Seascape and Visual Sensitivity to Offshore Windfarms in Wales: Strategic assessment and guidance (https://naturalresources.wales/evidence-and-data/research-and-reports/landscape-and-geodiversity-reports/publications-about-landscape-geology-soils-and-features-of-historic-interest/?lang=en)

- Stage 1. Ready Reckoner of visual effects related to turbine size (report 315);
- Stage 2. Offshore windfarm siting and design guidelines in relation to seascapes (report 330);
- Stage 3. Visual sensitivity of marine settings of Wales's Designated Landscapes to offshore windfarms (report 331)

These reports are principally focussed on the visual effects in relation to Designated Landscapes. Stage 1 includes buffers to avoid significant adverse effects on high sensitivity receptors. For 280m turbines, there is a 41.6km buffer for low magnitude of effect and a 28km buffer for medium magnitude of effect. Combined with high sensitivity, low magnitude of effect is likely to result in effects of moderate significance. Moderate effects can potentially be significant. For sites offshore from the Pembrokeshire Coast National Park between 22.6 and 44km distance, proposals are likely to be visible and adversely affect the special qualities including the setting, tranquillity and apparent wildness of the National Park.

2.9. NRW TE considers the Study Area defined as 45km from the outermost wind turbines (Section 7.3) to be acceptable and in line with agreed best practice guidance (SNH, 2017). The area includes parts of the Angle and Dale peninsulas and the Islands of Skokholm and Skomer. We understand that the project area and layout of the arrays would be defined in more detail in due course, which may affect the final Zone of Theoretical Visibility (ZTV). Furthermore, 3km Study Area for the onshore substation/control building and 1km Study Area for the onshore cable route have been defined and considered acceptable.

2.10. NRW TE considers that Several Dark Sky Discovery Sites lie within the Study Area, including at Martins Haven and Kete, as such it is noted that aviation lighting is likely to be required on some/all of the wind turbine generators.

2.11. The report states that a separate assessment of night-time landscape & visual effect or night-time visualisations is not proposed, but dark sky characteristics will be taken into account in sensitivity judgements and proposed lighting would be considered in the overall magnitude of change (Section 7.4.1). NRW TE disagrees and considers that a night-time assessment and visualisations is expected for a project of this nature, where dark sky sensitivities are a particular concern. There is also the potential for cumulative night-time effects with other offshore wind farms. Viewpoints for night-time assessment could include Martins Haven, Kete and Freshwater West and NRW TE would be happy to facilitate further discussion with you in this regard.

2.12. NRW TE agree with the report that the National Landscape Character Areas and National Marine Character Areas provide context and the SLVIA (Section 7.4.2) should be undertaken on the basis of the smaller units set out in the National Park's Landscape Character Assessment and Seascape Assessment, with reference also to LANDMAP. There is likely to be some overlap between Seascape Character Areas (SCA) and Landscape Character Areas. However, NRW TE considers that SCAs should not be scoped out as stated in the report given that this is an offshore project.

2.13. NRW TE advise that visual receptors (Section 7.4.3) should also include recreational users of the sea and coastal areas, including those undertaking activities such as sailing, wildlife boat trips, kayakers, users of the Pembroke-Rosslare ferry. NRW TE welcome the opportunity to enter dialogue regarding viewpoint selection.

2.14. NRW TE suggest an additional viewpoints are needed. An onshore viewpoint further east along the B4320 towards Corseside/minor road to Neath Farm (Table 7.1). A suitable viewpoint e.g. from the Wales Coast Path at West Angle Bay, from Freshwater West or Angle Bay would be required depending on the cable landfall site. Offshore viewpoints (Table 7.2) from Skokholm Island, West Angle Bay, Hooper's Point and St Govan's Head are also suggested. Furthermore, an assessment of the sequential visual impacts on sections of the Wales Coast Path would also be required.

2.15. NRW TE agree that photomontages for the cable landfall and cable route would not be required (Section 7.4.4), unless HDD is not possible for the cable landfall and cables were to be laid over cliffs/open ground. NRW TE recommend that more than 5 photomontages may be required from representative viewpoints.

2.16. NRW TE considers that Section 7.5 should take account of NRW evidence reports: Seascape and Visual Sensitivity to Offshore Windfarms in Wales, Strategic assessment and guidance Stage 1, 2 & 3 (see above)

2.17. NRW TE advise that the size and height of turbines, the location, orientation and spread of the array within the lease area and the inclusion or exclusion of lighting are also potential mitigation options for the project.

2.18. NRW TE agree that there is the potential for long term seascape, landscape and visual effects associated with the wind turbine generators and with the substation/control building (Section 7.8). Effects from the landfall and onshore cable route are likely to be temporary and reversible and result mainly from construction and decommissioning, and operational effects of these aspects can be scoped out of the SLVIA, assuming HDD is used at the landfall.

(8) Ecology and Biodiversity

2.19. NRW TE have concerns that an adverse effect from the proposed development on the integrity of the following protected sites designated as part of the National Site Network (and as identified by the ES, Chapter 8) cannot be ruled out:

- Limestone Coast of South Wales/Arfordir Calchfaen De Orllewin Cymru SAC
- Pembrokeshire Marine/Sir Benfro Forol SAC

- West Wales Marine/Gorllewin Cymru Forol SAC
- Castlemartin Coast SPA
- Pembrokeshire Bat Sites and Bosherton Lakes/Safleoedd Ystlum Sir Benfro a Llynnoedd Bosherston SAC

The following protected sites identified as being within scope:

- Broomhill Burrows Site of Special Scientific Interest (SSSI)
- Angle Peninsula Coast/Arfordir Penrhyn Angle SSSI
- Milford Haven Waterway SSSI
- Gweunydd Somerton Meadows SSSI
- Castlemartin Corse SSSI
- Castlemartin Range SSSI
- Limestone Coast of South Wales/Arfordir Calchfaen De Orllewin Cymru SAC
- Orielton Stable Block and Cellars SSSI
- Stackpole SSSI
- Stackpole Courtyard Flats and Walled Garden SSSI
- Park House Outbuildings, Stackpole SSSI
- Newgale to Little Haven/Arfordir Niwgwl Aber Bach SSSI

2.20. NRW TE advise that the species-specific impacts in the short, medium, and long term together with any mitigation and compensation measures proposed to offset the impacts identified should be included in the EIA. Should potential impacts be identified, NRW TE advise that the Ecological Impact Assessment (EcIA) should set out how the long-term site security of any mitigation or compensation will be assured, including management and monitoring information and long term financial and management responsibility.

2.21. PCC LPA point out that there are dormouse records on the Angle Peninsula. The effects of the development corridor as well as the in-combination impacts with the other projects of temporary but significant impacts of hedgerow removal (Chapter 8) should be addressed, in terms of dormouse crossing points and bats.

(9) Historic Environment and Cultural Heritage

2.22. The DAT are happy with the approach taken to scoping archaeology, but understand that the extent of the study area for the landfall and grid connection point may need to be adjusted, depending on the height/extent of above ground elements, in line with the criteria outlined by Cadw in their guidance document *Setting of Historic Assets in Wales (2017).*

2.23. The DAT indicates also that the DBA should assess both the visual impact of the development on the historic landscape and on the setting of historic assets and the potential direct impact on archaeological deposits and would expect to see a Written Scheme of Investigation (WSI) for this assessment.

2.24. CADW notes that it is proposed in section 9.27 Historic Landscape to prepare an Assessment of the Significance of the Impact of Development on Historic Landscapes (ASIDOHL2). CADW will welcome discussions with your cultural heritage experts to determine whether this will be the best approach and the appropriate methodology for assessing the impact on the historic landscape given the type of proposed development.

2.25. Section 9.2.1 refers to 2018 PPW, however, the latest version (ed.11) dates to 2021. Furthermore, the 2021 Historic Environment (Archaeology) SPG prepared by PCNPA is a joint document with PCC.

(10) Water Environment

2.26. NRW TE note that Groundwater Regulation 2009 (Section 10.2.1) no longer exist and are now part of the EPR 2016 under schedule 22 and the reference should be updated.

2.27. NRW TE notes that the objectives for each element include reaching good status by a given date and section 10.4.7.1, para 3 statement in relation to individual WFD elements having objectives is incorrect. Some of these elements (e.g. Dissolved inorganic nitrogen) are currently at Moderate status which is considered a fail. It should not be considered that these objectives will be achieved by 2025/2026 as a cycle 4 classification will not have been released by that time. NRW TE advise that you will need to use the most up-to-date classifications in their project assessments. You should note that the 2021 cycle 3 WFD classifications have been published and can be found on Water Watch Wales (https://waterwatchwales.naturalresourceswales.gov.uk/en/). The WFD Compliance Assessment must utilise this information as this is the most recent and relevant to use (e.g., Section 10.2.3.1).

2.28. NRW TE disagree scoping out of the assessment small, non-reportable streams running into coastal water bodies (or indeed the Pembrokeshire Marine SAC) due to scale (Section 10.7.6). For example, the potential to create a mixing zone of a pollutant could impact biota and needs consideration.

2.29. NRW TE have reviewed the Flood Consequences Assessment (FCA, Section 10.7.7) which is reliant on the final agreed design of the project. As such, NRW TE comments are limited at present, until a completed site-specific FCA is available. The criteria, which should normally be undertaken by a suitably qualified person carrying an appropriate professional indemnity, are given in Chapter 7 and Appendix 1 of TAN15. The FCA should be proportionate to the development proposed. You may also refer to our Building in Flood Risk Areas on the website (https://naturalresources.wales/guidance-and-advice/business-sectors/planning-and-development/advice-for-developers/building-in-flood-risk-areas/?lang=en), which contains technical advice and recommendations.

2.30. The scoping report has identified the need for a Flood Risk Activity Permit (FRAP), but this is again reliant on final designs and location. As such NRW TE cannot comment further and advise a FCA is required which includes but not limited to the information set out above.

2.31. NRW TE would like to get clarity on WFD water bodies proposed for inclusion within the WFD Assessment. There are inconsistencies between chapters of the report, as Milford Haven Outer and Pembrokeshire South waterbodies are considered in Chapter 19 and Milford Haven Inner and Outer on Chapter 10. NRW TE advise that Milford Haven Inner, Milford Haven Outer and Pembrokeshire South should all be considered within the Marine Chapter 19, as there are potential pathways for effect to this water body.

2.32. NRW TE disagrees with the statements within Section 10.7.6 and considers that all non-reportable water bodies will need to be considered within the WFD Compliance Assessment, regardless of scale, if there is a pathway for effect.

(11) Geology And Hydrogeology

2.33. There are three proposed landfall sites for the cables, but no defined cable routes. NRW TE are therefore providing high level advice assuming that Pembroke Power Station will be used for onward connection and recommends the proposal to be further defined before submission. NRW TE comments would likely change once finalised locations and routes are confirmed, but recommend the following surveys, supported by risk assessment, to determine the level of risk to controlled waters from the proposed project infrastructure:

1. Water Feature Survey is completed with a 300m buffer either side of the cable route and around buildings and compounds, which should include the following:
    - Identification of all water features both surface and groundwater (ponds, springs, ditches, culverts etc.) within a 300m radius of the site or either side of a linear development area, e.g., cabling route;
    - Use made of any of these water features. This should include the construction details of wells and boreholes and details of the lithology into which they are installed;
    - An indication of the flow regime in the spring or surface water feature, for example whether or not the water feature flows throughout the year or dries up during summer months;
    - Accessibility to the spring/well;
    - This information should be identified on a suitably scaled map (i.e. 1:10,000), tabulated and submitted to NRW. It would be useful to photograph each of the identified water features during the survey.

2. Preliminary Risk Assessment to define historical land uses to:
    - Follow the risk management framework provided in Land contamination risk management

(LCRM https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm)

- Refer to 'Land Contamination: a guide for developers' (WLGA, 2017) for the type of information that we require in order to assess risks to controlled waters from the site. The Local Authority can advise on risk to other receptors, such as human health.
- Refer to our groundwater protection advice on www.gov.uk

2.34. Based on the results of the Water Feature Survey you must assess the likely impacts from the development on both quantity and quality of the surface water and groundwater. This should take into consideration both the preferred methods of construction and the assumed hydrogeology in the vicinity of the development.

2.35. NRW TE may require that identified groundwater features are monitored during the proposed workings and would therefore recommend that the Water Feature Survey be undertaken as soon as possible to enable the developer to carry out suitable baseline monitoring prior to the commencement of workings at the site.

2.36. NRW TE also point out that:

- Any use of HDD will require a groundwater risk assessment to ensure there are no risk to controlled waters from this construction method.
- Were the onshore cables be fluid filled, pollution prevention measures will need to be developed to avoid risks from leakage. NRW TE indicates that there is a groundwater position statement regarding fluid fill cables – C5 in "approach to groundwater protection" (an NRW adopted guidance from the Environment Agency, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692989/Envirnment-Agency-approach-to-groundwater-protection.pdf).

(12) Agriculture and Soils

2.37. No comments were received on this topic

(13) Traffic and Transport

2.38. The PCC LPA indicates that the vehicular traffic corridor identified should be extended back to include the A4075 to the Finger Post Junction of the A477 Trunk Road.

2.39. The PCC LPA considers that the route from Pembroke Port to the potential sites via the highway should be considered unless it is to be fully ruled out. This is of particular relevance as reference is made to possible abnormal loads which would be restricted due to the presence of railway bridges between the trunk road and the southern strategic route.

(14) Aviation and Radar

2.40. No specific comments were received on this topic, however, please refer to related comment on dark skies in Seascape, Landscape and Visual section regarding the probable requirement for aviation lighting.

(15) Air Quality

2.41. No comments were received on this topic

(16) Noise and Vibration

2.42. No comments were received on this topic

(17) Socio-Economics, Recreation and Tourism

2.43. No comments were received on this topic

(18) Health and Wellbeing

2.44. No comments were received on this topic

3. Volume 3: Marine Environment:

3.1. NRW TE advises that the relevant National Policy Statements (NPS) are considered and referred to for all relevant receptors in their appropriate chapters throughout the ES. Please note that a review of the energy NPSs is currently underway (https://www.gov.uk/government/consultations/planning-for-new-energy-infrastructure-review-of-energy-national-policy-statements) which you may need to take account of in further developing their proposals.

3.2. NRW TE highlights that the following are (but not limited to) other environmental matters relevant to consider:

- the interaction with Welsh Government's MPA Network Completion project which could identify Marine Conservation Zones in areas of Floating Offshore Wind (FLOW) interest;
- the implications of work under the Offshore Transmission Network Review;
- the implications of The Crown Estates FLOW leasing round, aggregates and Round 4 plans, and
- the inevitable need to build the evidence base for FLOW.

NRW TE would be happy to have discussions about these matters with you at a convenient time.

3.3. JNCC note that "a buffer distance of 10km of the proposed Project has been considered which encompasses all likely ZoI to benthic receptors within the subtidal". We await the establishment of the Project's ZoI as per Section 30.3.2.1. and further clarity as to how the ZoI has been determined.

3.4. RSPB encourages that the developer opens discussions with The Wildlife Trust of South and West Wales and The Wildlife Trusts for advice on Marine Mammals and Benthic Ecology.

(19) Physical Environment

3.5. NRW TE advise that marine water quality is a receptor in its own right and should not be embedded in the physical processes chapter of the ES. Therefore Section 19.1, 19.4.11, Table 19.4 should be modified to take this into consideration and present a separate marine water quality chapter.

3.6. NRW TE would like to clarify that apart from the seabed morphological features at the coast, physical processes are not in themselves receptors. These are instead pathways through which any alteration to the hydrodynamics (waves, currents, water levels) and sediment transport caused by the development proposals, can indirectly impact other environmental receptors. For example, impacts on water quality, and subtidal and intertidal benthic ecology.

3.7. NRW TE welcome the breadth of guidance already sourced to inform the physical processes impact assessment. However, NRW TE would like to point out additional guidance and peer reviewed research papers that in their view should also be used to inform the baseline and impact assessment:

• King *et al*. (2019). The impact of waves and tides on residual sand transport on a sediment-poor, energetic, and macrotidal continental shelf.

• Guidelines in the use of metocean data through the lifecycle of a marine renewables development'. (ABPmer *et al*., 2008b); and

• Offshore Windfarms: Guidance note for Environmental Impact Assessment in Respect of FEPA and CPA requirements'. (Cefas, 2004).

• Further review of sediment monitoring data'. (COWRIE ScourSed-09).' (ABPmer *et al*., 2010);

• Review of Round 1 Sediment process monitoring data - lessons learnt. (Sed01)' (ABPmer *et al*., 2007);

• Dynamics of scour pits and scour protection - Synthesis report and recommendations. (Sed02)' (HR Wallingford *et al*., 2007); and

• Potential effects of offshore wind developments on coastal processes'. (ABPmer and METOC, 2002).

3.8. NRW TE would like to point out the following in relation to Table 19.2 (beside the point made about removal of mention to water quality impacts as it is not considered to be a direct Physical Processes impact), some of which will change what is scoped in/out of the EIA:

- Installation: surveys – temporary disturbance causing increase in SSC: Suspended sediment plumes generated that will be advected away from site by the prevailing currents and the maximum extent of these plumes will depend on the sediment size and the maximum tidal excursion. The redeposition of sediment onto the seabed will potentially cause an alteration to the sediment morphology through change to sediment type and sediment thickness variations.
- Installation: the destruction of sand waves is not necessarily a temporary disturbance. Sand wave recoverability is dependent on the sediment mobility at

that site and the hydrodynamics. If the sand waves are stable features with very low movement, then the sand waves may never recover. Sand wave clearance is not just disturbance but a potential alteration to seabed morphology.

- Cable Laying: Installation: we disagree that cable laying will have no significant impact on the seabed or on associated physical processes. No rationale is provided as to why this is scoped out from further assessment, and we strongly advise that it remains scoped in until evidence is presented that confirms that the cable laying activities do not cause significant impacts to the seabed features or cause alterations to sediment morphodynamics, particularly in relation to the impact on offshore sand banks and beach morphodynamics.
- Installation: Cable burial: The rationale notes that this will only be scoped in for cable burial >10m water depth. It is not clear what methods are proposed for water depths <10m. The whole cable route should be assessed.
- Installation: Cable Protection: The cable protection will directly impact on other receptor areas such as benthic ecology and Water Framework Directive (WFD) depending on where it is in proximity to the coast. However, the impacts of cable protection should be assessed in their respective chapters and not specifically in the physical processes chapter.
- Installation: anchor deployment: it is not explicitly clear what activity this is referring to. The FLOW structures will be anchored to the seabed. No reference has been made to the potential impacts caused by the drag anchors in deeper water e.g., sediment disturbance. Clarity is sought with regard what this pathway is specifically referring too – we assume that it refers to the boat anchors during cable laying of the export cable.
- Installation: Mooring systems: the impacts arising from installing the floating offshore wind structure mooring systems, for example, using drag anchors or pile foundations have not been included. Such impact pathways need to be further considered and scoped in at this stage.
- Operation and Maintenance: We are concerned that a number of impacts have been omitted (scoped out) from Table 19.2. We strongly advise that you consider and scope in the following:

  i. Potential changes to tidal regime, wave regime and sediment transport regime through blockage effects of the floating OWF structures and mooring cables. Please note that persistent changes to waves and currents may have a net effect over time on net patterns of sediment transport (rate and direction). The sensitivity of these patterns of change will depend upon the relative importance of currents and/or waves, the magnitude and extent of any effect, the nature of the seabed system and degree to which the system is presently in balance e.g., is the present rate and direction of transport essential to the maintenance of a dynamic morphological feature.

  ii. Abrasion impacts arising through movement of the mooring chains across the seabed leading to scour pits and change to seabed sediment type and increase in SSC plumes. Extent and depth of scour may vary over time.

iii. Effects of increased turbulence on sediment transport immediately adjacent to any laying objects, for example in relation to anchoring structures on the seabed which can cause scour.

iv. The requirement for cable protection in the nearshore zone and across the intertidal cannot be ruled out at this time, particularly if the cable has to cross another cable. Presence of cable protection so close to the shore will potentially interrupt the longshore sediment transport pathway and cause alteration to the beach morphodynamics downstream of the site. Wave refraction and diffraction processes caused by the presence of the cable protection in shallow water could also cause energy refocussing towards the coast leading to coastal erosion.

3.9. NRW TE consider that clear rationale and evidence should be provided to justify the study area to be 10km as presented in figure 19.1 (Section 19.3). NRW TE strongly advise that the maximum spring tidal excursion is used to define the ZoI which will vary from offshore to inshore depending on the spring tidal ellipses (which are generated by the current velocity and direction of flow). Tides in the region flow from the west-north-west to east-south-east on the flood and reverse in direction on the ebb. The study area shown in figure 19.1 does not suggest that the direction of flow has been considered in defining the ZoI particularly for the offshore array area. The submitted ES must clarify the tidal excursion being proposed with sufficient justification and evidence presented to demonstrate why the value is considered appropriate. Early engagement with NRW TE is advised to agree the ZoI for physical processes as it will also be relevant to the impact assessment for the other receptor areas.

3.10. NRW TE advise to include only the physical processes criteria in Table 19.3. The table refers to marine receptors that are indirectly impacted by the physical processes i.e., where physical processes is a pathway acting on sediment and water quality. Sensitivity on other receptors should be addressed in their respective chapters, otherwise, important impacts may be omitted if it is considered that the sensitivity to physical processes is low.

3.11. JNCC would like to better understand how the baseline (section 19.4) is expected to evolve over the lifespan of the proposed project.

3.12. NRW TE considers that the detail presented in this scoping report to describe the seabed geomorphology (section 19.4.9) for the study area is insufficient and strongly advise that seabed geomorphology (including: bedform features, sand waves, sand banks, sediment type, mobile sediment depth) are described for the entire project area. This should be done using high resolution multibeam bathymetric survey data, and a description of the bedload and suspended sediment transport processes presented. A data gap analysis should be carried out to determine the requirement for further high-resolution bathymetric surveys if there is insufficient data publicly available. Please note that accurate determination of the bedform migratory rates of sand wave fields and understanding the complexities of the sediment transport regime around sandbanks present in the study area (e.g., Turbot Bank), will be critical for an accurate assessment of the impacts arising from cable laying activities and cable protection measures.

3.13. NRW TE understand that the baseline environment for the chosen landfall location has to be well described in terms of coastal sediment transport processes and beach morphodynamics (section 19.4.13) at the point of submission.

3.14. The boundaries of the designated sites on the map in section 19.4.14 and the project study area overlayed with the features of interest relating to physical processes should be presented to aid the assessment.

3.15. NRW TE advise that the list in section 19.6 Likely Significant Effects is revisited and the effects to only include the physical processes. The effects on the other receptors should be separated from the physical processes and moved to their respective chapters. Marine physical processes are pathways and the impact to the hydrodynamics and sediment transport processes caused by the development activities can potentially cause indirect impacts to other environmental receptors including the coast, offshore sand banks (Turbot Bank) and seabed areas contained within nationally or internationally designated sites.

3.16. NRW TE considers in Table 19.2, with regards to WFD, should consider water-body scale impacts and the potential effects of the project on the WFD status and objectives, at an element level. Also, in relation to the composition of the drilling fluids to be used for HDD, it is expected that bentonite could be used which will remain in suspension increasing suspended solid concentration. Therefore, bentonite release (or similar) would need to be assessed in the context of suspended sediment releases.

3.17. NRW TE generally agree the potential impact pathways included for water quality elements noted on Table 19-2, however, consider that there are some omissions:

- Installation / Decommissioning: Contaminants must be considered throughout the cable corridor and all the way up to landfall and must be compared against CEFAS action levels. (Note: at landfall, dependent on sediment type present, the potential to release bacteria from the sediment (noting it is typically associated with fine sediment) might also need to be considered;
- Operation: The potential to increase temperature as a result of cabling must be considered – this could also impact both on benthic ecology and bacterial growth;
- Installation: While HDD has been included (and scoped out) in terms of water contamination, trenching has not. Trenching should be included and the impacts scoped in due to the potential to release chemicals and / or bacteria;
- It would be helpful to lay out the potential impact pathways for marine water quality more explicitly and within its own chapter of the ES, so that it can be determined if all correct impact pathways have been identified. For example, it appears that there is no (or very limited) consideration has been made of the potential for bacterial and turbidity releases to impact on Bathing water quality.

3.18. Please note that disturbance of Suspended Sediment Concentrations (SSC) will also lead to advection and redeposition of the sediment plume with the spatial extent and concentration of the sediment plume dependent on the percentage distribution of sediment size and type, the water depth, and the hydrodynamics.

Redeposition of the suspended sediment plume will also cause seabed morphological change which can indirectly impact on the benthic ecology receptor.

3.19. NRW TE recommend in relation to section 19.7.1 that you follow the NRW GN041 guidelines (https://naturalresources.wales/guidance-and-advice/business-sectors/marine/marine-physical-processes-and-environmental-impact-assessment-eia/?lang=en), with specific reference to Chapter 6 of the embedded Evidence Report (Guidance on Best Practice for Marine and Coastal Physical Processes Baseline Survey and Monitoring Requirements to Inform EIA of Major Development Projects, NRW Evidence Report 243, Brooks *et al.,* 2018). You will need to clearly demonstrate that the sourced data is fit for purpose and still valid to characterise present day conditions. NRW TE advise that any data used to inform the baseline understanding must have been collected and analysed in accordance with recognised data quality standards. The sourced data will need to provide the appropriate temporal and spatial coverage and resolution which will adequately describe the present-day conditions within the study area as well as longer-term historical change; both of which are essential to establishing a full conceptual understanding of the natural physical environment baseline of the site and surrounding area. The data sourced should be fit for purpose to sufficiently address the key themes of baseline understanding as described in Brooks *et al*, 2018 (see below for information):

- Identification of the processes maintaining the system, the reasons for any past changes, and sensitivity of the system to changes in the controlling processes.
- Identification and quantification of the relative importance of high-energy, low frequency (“episodic” events), versus low-energy, high frequency processes.
- Identification of the processes controlling temporal and spatial morphological change (e.g., longevity and stability of bedforms; cliff recession; loss of beach volume; or bank and channel migration; inter-tidal accretion/ erosion), which may require a review of bathymetric and topographic data.
- The identification of sediment sources, pathways and sinks, and quantification of transport fluxes.
- The identification of the inherited geological, geophysical, and geotechnical properties of the sediments at the site, and the depth of any sediment strata.
- Interaction of waves and tides and the subsequent quantification of the extent to which seabed sediment is mobilised.
- The assessment of the scales and magnitudes of processes controlling sediment transport rates and pathways.

3.20. NRW TE disagrees with the intention to rule out the potential requirement for numerical modelling to inform the impact assessment for the proposed project (Section 19.7.2). NRW TE will expect a review of available evidence (for example evidence reports from other similar projects / windfarm schemes) to fully understand the range of evaluation techniques and best practice applied to similar schemes. NRW recommend early engagement with NRW TE in this topic before agreeing that numerical modelling is not required.

3.21. Furthermore, JNCC would like to better understand which surveys are proposed, as the information provided in Section 19.7.3 is very limited.

3.22. NRW TE indicates that Vessels should also follow the Work Boat Code (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/441389/Workboat_Code_IWG_Tech_Std_14-06-09-sgs.pdf) as found on the Marine and Coastguard Agency website.

(20) Benthic Ecology

3.23. It is stated that the assessment methodology for benthic ecology will follow the standard methodology for ecological receptors outlined Chapter 8, which is in line with CIEEM guidance for ecological impact assessments (CIEEM, 2018). This methodology relates to terrestrial receptors, and NRW TE indicates that some of the criteria are not appropriate for benthic habitats. For example, Section 8.7.3.2 describes how the sensitivity of the receptor will be assessed based on geographical frames of reference, some of which are not relevant in the marine environment. NRW TE recommend further clarity is requested on the frames of reference that will be used for marine receptors.

3.24. JNCC have stated that the turbine's anchor placement impacts should be considered within Table 20-1, given that will be in place for the duration of the project and result in long term disturbance of the seabed. Further discussion on the timescales of what would be considered a permanent and/or temporary loss may be required.

3.25. NRW TE considers that in relation to Table 20-1:

Operation: Introduction and spread of Invasive non-native species (INNS): New infrastructure could act as a stepping stone for the introduction of INNS. NRW advise that biosecurity is considered and assessed in all stages of the development including the operation phase.

Operation: Maintenance potential effects the same as route preparation and cable installation: NRW TE advise the following potential impact pathways should be scoped in for the operation phase:

i. Temporary increase in SSC and sediment deposition leading to contaminant mobilisation, turbidity, and smothering effects – from maintenance operations

ii. Operation Indirect habitat loss – potential impacts on adjacent benthic habitats from on-going scour, changes in hydrodynamics and abrasion from the movement of catenary chains.

iii. Operation Disturbance to benthic habitats – potential disturbance to benthic habitats from planned maintenance, cable failure, excavation but also disturbance and potential impacts to benthic habitats from the movement of the catenary chains.

iv. Operation Habitat alteration – The introduction of hard substrate in the form of cables and scour protection may lead to increased heterogeneity and

consequently to new different biological communities, particularly in areas of soft sediment where hard substrate is uncommon. Adjacent habitats may be indirectly affected by infrastructure through scour, changes in hydrodynamics, increased sedimentation/smothering in the construction phase and through additional ongoing scour and change in hydrodynamics in the operation and maintenance phase.

v. Operation Effects of electromagnetic fields (EMF) emissions – NRW TE disagree this potential impact can be scoped out as there is some evidence that EMFs affect crustacea behavioural patterns (e.g. Scott *et al.,* 2021, Harsanyi *et al*, 2022) which would potentially include certain species under Section 7 (Environment Wales Act 2016) e.g., Crawfish *Palinurus elephas*. As Chapter 7 habitats and species have not been incorporated into the current scoping document it is not possible to scope out these elements without further assessment.

vi. Operation Changes in hydrodynamics – We note this potential impact pathway has not been scoped in for benthic habitats. We advise it will be important to make links between potential impacts to the physical environment and subsequent impacts on benthic habitats in the ES given the close interlinkages and inter-dependencies between both receptors i.e., impacts on physical processes informs impacts on benthic habitats. It is currently unclear from the scoping report how impacts that span across both of these receptors (physical processes and benthic habitats) will be assessed and/or how links will be made between chapters with other receptors e.g., water quality. See also the physical processes section above

3.26. NRW TE would like to refer to comments made in Physical Processes with regards to the definition of the ZoI to revise accordingly the buffer distance defining the study area (Section 20.3).

3.27. Native oyster (*Ostrea edulis)* beds are also present within the offshore cable scoping boundary. *Ostrea edulis* beds are also a habitat present within the Annex I Estuaries and Large Shallow inlets and Bays features of the Pembrokeshire Marine SAC, a Section 7 species and an OSPAR habitat. NRW TE advise that you contact NRWs data distribution team to be provided with a copy of the relevant data points.

3.28. NRW TE (Section 20.4.3) advise potential impacts to Limestone Coast of South West Wales SAC are also scoped in as the “Submerged or partially submerged sea caves” feature are cross-boundary features between the Limestone Coast SAC and the Pembrokeshire Marine SAC. Whilst NRW TE acknowledge the sensitivity of this feature to project secondary effects may be lower than for other habitat features, some biotopes within this feature may still be sensitive to project secondary effects.

3.29. JNCC would like to highlight that impacts from the introduction of scour protection should be considered within Section 20.6 and Table 20-1.

3.30. NRW TE welcome the proposal to gather project-specific survey data and encourages engagement with NRW TE on survey requirements (Section 20.7). NRW TE would like to remind you of NRW guidance on benthic habitat assessments for

marine developments (https://naturalresources.wales/guidance-and-advice/business-sectors/marine/benthic-habitat-assessments-for-marine-developments/?lang=en).

3.31. JNCC will also require further information regarding the project-specific surveys mentioned in section 20.7 and 20.8 before providing further comments.

(21) Fish and Shellfish Ecology

3.32. NRW TE welcomes the intention to further assess sandeel and herring spawning in light of the results of the benthic sampling and would advise that GIS modelling is carried out using the methodology described by Reach *et al* (2015), Latto *et al* (2013) and Marine Space Ltd *et al* (2013a, 2013b).

3.33. For oceanic species, such as Bluefin tuna (*Thunnus thynnus*) and Basking shark (*Cetorhinus maximus*) (a Wildlife and Countryside Act and OSPAR protected species), NRW TE indicates that additional data should be consulted to assess the species-specific risk of entanglement. The ES for Project Erebus list several data sources and records which can be used.

3.34. NRW TE recommends that surveys proposed for marine mammals, Digital Aerial Surveys for birds, as well as sampling of benthic habitats are used to record any fish encountered. For example sandeel from grab sampling, or fish encountered in video surveys as well as to include observations of large oceanic fish to inform the assessment.

3.35. Figure 21-1 Map of study area: NRW TE advise that Cardigan Bay and River Teifi SAC, both of which have Annex II diadromous fish features, are borderline on the screening criteria but should be included on the map and scoped in for migratory fish species.

3.36. The Salmon and Freshwater Fisheries Act (1975) should be included in the list of relevant legislation for the project (Section 21.2). Although the site is offshore and outside the 6nm distance from the coast, the cable corridor and wider study area is inside the boundary where the legislation applies.

3.37. NRW TE agrees that underwater noise from construction activities is likely to be a primary effect on fish, especially for fish where the swimbladder is near or connected to the ear, such as in the clupeids. Recent evidence (Davies *et al* 2020b) has found that Twaite shad from the River Severn undertake long range migration across the Celtic Sea, and NRW TE therefore recommend that to ensure any fish passing through the Study Area are considered, a regional approach is taken, screening in all sites with noise sensitive fish features (Section 21.3). Furthermore, NRW TE recommend that site and project specific noise modelling is undertaken to inform the detailed assessment.

3.38. NRW TE does not disagree with the species described in section 21.4.1 to 21.4.4, and understand that this is not an exhaustive list. However, NRW TE advise that for EIA purposes, receptor fish species should primarily be informed through a combination of species conservation status (e.g. Annex II, OSPAR, Section 7), species of commercial importance and their ecological role, e.g. species which form

important prey species for other receptors, such as marine mammals and birds and as such this list should be refined and appropriate processes for species selection identified.

3.39. Angel shark (*Squatina squatina*) is listed as a species on the Wildlife and Countryside Act under Schedule 5; is an OSPAR/Section 7 Species, as well as being listed on the Convention on the Conservation of Migratory Species of Wild Animals. NRW TE considers that the angel shark should also be included in section 21.4.4 and the assessment due to historic and current presence in Welsh waters (Barker *et al*. 2021 in-prep) and the potential for this species to make seasonal inshore-offshore movements particularly in relation to potential effects of EMF.

3.40. You should note and be aware that there are Atlantic herring (*Clupea harengus*) spawning grounds inside the Pembrokeshire Marine SAC, as well as in the coastal areas (Davies *et al.,* 2020a) so these need to be appropriately captured and considered in the ES, Section 21.4.5. Whilst NRW TE agrees with the use of the fisheries sensitivity maps by Coull *et al.* 2012, and Ellis *et al.*, 1998 the limitations of these maps should be noted, especially around the lack of survey data for coastal waters and water less than 30m deep, as well as the age of some of the data. NRW TE further advise that additional data sources for the Celtic Sea should be consulted, such as the PELTIC surveys conducted by Cefas. The recent report 'Spawning and nursery grounds of forage fish in Welsh and surroundings waters' (Campanella & van der Kooij, 2021) presents a useful summary of data sources for a range of fish species in Welsh waters and NRW TE recommend that this is considered.

3.41. NRW TE also advise that Atlantic salmon (*Salmo salar*) (Annex II migratory fish), and sea trout (*Salmo trutta*) are included in Section 21.4.7, as described in Section 21.4.3, as these are features of the Severn Estuary SAC/Ramsar site migratory fish assemblage. NRW TE welcomes the intention to screen in the Severn Estuary SAC but would advise that the Rivers Usk and Wye SACs connected to the site, are also included and should therefore be scoped into the assessment.

3.42. NRW TE agree with the list of potential impacts identified in Section 21.8, and that no specific fish or shellfish surveys are required. However, as described above, should any fish be encountered during the benthic surveys this information should be used to validate the desk top study of spawning/nursery habitat, in addition to the recommendations above relating to the additional data sources and modelling for some receptor species.

3.43. NFFO understands that there are potential impacts on fish and shellfish stocks which this scoping document does not adequately capture. NFFO note that the ecological baseline to be used in assessing these impacts relies largely on studies of the regional marine fauna conducted in 2012 or earlier with no Project specific surveys planned for the assessment of impact pathways (section 21.8). NFFO understands that this reliance on outdated surveys, despite subsequent environmental changes and the completion of various offshore construction projects with the potential for ecological disruption lacks credibility. NFFO points at examples of other projects willing to conduct new baseline and post-construction monitoring surveys for their projects which have aided immeasurably the understanding of the actual environmental impacts of offshore development and the mitigation of any that

appear to be negative. NFFO would like to point at the work conducted by Ørsted on the Westermost Rough project is an exemplar of what can be achieved.

3.44. NFFO understands that the scoping report dismisses the potential impacts of electromagnetic field emissions (EMF) on fish, shellfish and cetaceans. A feature of floating, as opposed to fixed, wind farms, that the inter array cables descend gradually from each turbine, buoyed in mid water to achieve a 'lazy wave' configuration and allow for the movement of the turbine and as such cables will be suspended for long distances in the water column, not trenched and shielded by sediment or rock armouring. Organisms will therefore be exposed to EMF throughout the array. Therefore, NFFO as well as SNCBs understand that EMF should be scoped in the assessment and the potential impact on commercial fish and shellfish stocks or cetacean populations evaluated should be properly investigated. The NFFO points out that recent research has identified negative effects of EMF on the larval development of crab and lobster [Harsanyi *et al* (2022) The Effects of Anthropogenic Electromagnetic Fields (EMF) on the Early Development of Two Commercially Important Crustaceans, European Lobster, Homarus gammarus (L.) and Edible Crab, Cancer pagurus (L.) J. Mar. Sci. Eng., 10, 564] – both important commercial species in this region.

(22) Marine Mammals

3.45. NRW TE does not agree with the rationale of using a 50km buffer for scoping purposes for cetaceans, or the 135km buffer for grey seals. The Annex II marine mammal features of SACs are mobile and wide ranging. They are not limited to the boundaries of the SACs, and can be found, and therefore impacted anywhere within the relevant management unit (MU) – including within the impact footprint of the underwater noise activities described in the scoping report. NRW TE consider the MUs and the SACs within them as functionally linked areas (Chapman & Tyldesley 2016).

3.46. NRW TE advises that the MU is the appropriate scale for consideration of offsite impacts for marine mammals. The proposed works fall within both the Celtic & Irish Seas MU for Harbour porpoise, and the OSPAR Region III interim MU for grey seal. We therefore advise that the following SACs with marine mammal features within the relevant MU should be scoped into the assessment (NRW, 2020a):

- Gogledd Môn Forol / North Anglesey Marine (Harbour porpoise)
- Gorllewin Cymru Forol / West Wales Marine (Harbour porpoise)
- Dynesfeydd Môr Hafren / Bristol Channel Approaches (Harbour porpoise)
- Pen Llŷn a'r Sarnau / Lleyn Peninsula and the Sarnau (Grey seal)
- Cardigan Bay / Bae Ceredigion (Grey seal)
- Pembrokeshire Marine / Sir Benfro Forol (Grey seal)

3.47. Where the MUs include SACs outside of UK waters, transboundary impacts must also be considered, and the potential impacts on SACs within other jurisdictions should be assessed. Details of these sites can be found in NRW (2020a, attached).

3.48. NRW TE indicates that the proposed works fall within the Offshore Channel, Celtic Sea & SW England MU for Bottlenose dolphin. There are no SACs with bottlenose dolphin features within this MU. We do not consider that the bottlenose dolphin features from the SACs listed above are likely to be found within the project impact area and therefore advise that there is no likely significant effect on this feature.

3.49. With regards to the HRA, NRW TE advise that the proposed works are likely to have a significant effect (either alone or in combination with other plans or projects) on the aforementioned SACs and therefore recommend that an Appropriate Assessment (AA) is carried out on all of the sites listed. Advice on how to carry out the AA for those marine mammal features can be found in NRW (2020a, attached)

3.50. NRW TE agrees with the use of the data sources listed (section 22.7), although it is not clear what data source IAMMWG (2021) refers to as this reference is not listed in the reference list. NRW TE note the intention to use project specific survey data but there is no further information on what surveys are intended, or what data will be collected. NRW strongly recommend further engagement with NRW TE and JNCC to discuss what surveys are proposed, to avoid the risk of there being inadequate data to form an assessment.

3.51. JNCC indicates that for offshore areas the relevant Special Areas of Conservation (SACs) for this development have been identified. Potential impacts scoped in and out for the EIA are appropriate but need more detail added as this is a Floating Offshore Wind (FLOW) project, and some impacts are still poorly understood.

3.52. NRW TE agree with the stated intention that the Study Area (Section 22.3) will take into consideration (where available) species specific marine mammal Management Units (MUs) published by the Inter Agency Marine Mammal Working Group (IAMMWG, 2015) and a consideration of the designated sites within for the initial screening. However, JNCC indicates that the management unit (MU) for bottlenose dolphin relevant to this development is OCSW – offshore Channel, Celtic Sea and South West England, not Irish Sea MU.

3.53. JNCC would like to stress that the SCANS surveys proposed in Section 22.4.1 represent a snapshot of cetacean presence, as they represent a single survey conducted in each area. There may be other species present, for example, Risso's dolphins.

3.54. JNCC would like that Section 22.4.2 clearly state that the values represented in Table 22-2 are from counts from 2016 – 2019 itself. Also note in the text that the total population estimate is "<15"; the figure of <10 is observed individuals on the survey only.

3.55. JNCC indicates that it would be beneficial if the distance between Marine Protected Areas (MPAs) and the array/cable scoping areas in Table 22-3 were separated, as the potential impacts associated with each area could be different.

3.56. JNCC indicates the following in relation to potential impact pathways in relation to marine mammals during construction, operation and decommissioning of the proposed project (Table 22-4) under Potential Impact Pathway:

Effects of underwater sound: Underwater noise during the operational stage is not included as a potential impact pathway; this should be added. The effects of underwater sound during construction and operation will be very different. FLOW cable "thrums" and operational noise are not mentioned and noting that "maintenance potential effects same as construction" is not sufficient. Please note that cable "thrums" have not been well characterised in terms of underwater sound levels and potential to impact marine mammals either for individual turbines or arrays. This may require specific modelling or other studies. How turbine operating noise propagates from floating turbines is also poorly understood.

JNCC also note that the likelihood of finding UXOs, especially in the inshore part of the study area, is considered high. JNCC highlight a position statement1 published Defra and signed by (amongst others) JNCC and NRW regarding UXO clearance methods.

Entanglement with mooring lines and cables: Please include the reference for the specific study mentioned. This is an emerging technology which is poorly understood in terms of potential to impact marine mammals and entanglement events of FLOW with marine mammals not well quantified. This should be made clear.

3.57. NRW TE supports the inclusion of the measures detailed in section 22.5 to minimise the risk of impact to marine mammals.

3.58. NRW TE agrees with the list of impact pathways as detailed in Table 22-4 to be scoped in to the assessment for marine mammals.

3.59. Section 22.7 states that the assessment methodology for marine mammals will follow the standard methodology outlined for ecological receptors outlined in Volume 2, Chapter 8, which is in line with CIEEM guidance for ecological impact assessments (CIEEM, 2018). However, NRW TE indicates that this assessment methodology relates to terrestrial receptors, and some of the criteria are not appropriate for marine mammals. For example, Section 8.7.3.2 describes how the sensitivity of the receptor will be assessed based on geographical frames of reference, some of which are not relevant in the marine environment. NRW TE recommend further clarity is requested on the frames of reference that will be used for marine receptors.

3.60. NRW TE note the potential for UXO to be present at the development site, and support the intention to collect magnetometer data to assess the potential for issues. NRW TE note that the potential for underwater noise impacts from UXO have already been scoped in to the assessment. We recommend that should UXO disposal be necessary, you should refer to the joint interim position statement on UXO clearance: https://www.gov.uk/government/publications/marine-environment-unexploded-ordnance-clearance-joint-interim-position-statement/marine-environment-unexploded-ordnance-clearance-joint-interim-position-statement

(23) Ornithology

3.61. RSPB reminds the developer that the ES should provide a detailed programme of ornithological surveys and comprehensive identification of protected sites and species that could be affected by the proposal. All impacts on nature conservation interests should be fully described, assessed and the significance of impacts clearly explained in the ES. The mitigation hierarchy should be followed to avoid, mitigate, or compensate for biodiversity losses. All impacts predicted should include fully worked up possible mitigation in the ES. Monitoring should be employed to verify predictions and identify any unexpected impacts.

3.62. Robust evidence should be presented so that the potential environmental impacts can be properly understood and evaluated; and appropriate measures identified to avoid, reduce or, where necessary, compensate for those impacts.

3.63. JNCC indicates that the screening exercise for Special Protected Areas (SPA) at potential Likely Significant Effect (LSE), as part of Habitats Regulations Assessment (HRA), is incomplete and needs additional work.

3.64. It is of JNCC's opinion that the long list of projects to be included within an in-combination assessment is far from complete and needs additional work. This may be best undertaken after a screening exercise has identified the SPAs which may be impacted and upon which in-combination impacts need to be identified.

3.65. JNCC and NRW TE as the Statutory Nature Conservation Bodies (SNCBs) advise the use of Woodward *et al.* (2019) species-specific Mean Max +1SD. This represents a relatively quick and straightforward approach to establishing connectivity between a proposal's location and a site's qualifying features, as is required to establish likely significant effects. There is, however, the possibility that using this approach could miss out some colonies; therefore, a sense check will also need to be performed to ensure that all colonies for which there is a potential for likely significant effect are included at the screening stage. Assessments should always be based upon the best and most up to date evidence available.

3.66. The list of species to be included in scoping will need to be expanded to include all marine birds listed as features of designated sites within the mean max +1SD foraging ranges (Woodward *et al* 2019).

3.67. RSPB considers that the scoping document is generally comprehensive and covers most ornithological issues sufficiently. Nevertheless, there are some additional matters that we consider need further consideration as part of the EIA, including the screening of designated sites and cumulative/in-combination effects. Furthermore, the array area also falls within potential spawning and nursery areas for important seabird foods prey items which include sand eel, herring, and sprats.

3.68. Section 23.3. paragraph 2 for clarity JNCC suggest rewording to "and selected sites designated for far ranging species with a mean maximum +1 Standard Deviation foraging range (from Woodward *et al.* 2019) that is greater than 100 km." Furthermore, NRW TE advise that all designated sites with named features whose foraging ranges fall within the mean maximum foraging range +1 standard deviation (Mean Max +1SD) in Woodward *et al* 2019, should be included for scoping as it is

not possible to know what sites might be affected until the surveys show what species are present, and key work such as apportioning has been completed. Potential impacts on wintering bird features and the potential impacts on birds migrating to and from protected sites, along with estuarine Special Protection Areas (SPA) and Sites of Special Scientific Interest (SSSI) features which could be affected by collision risk on migration, should also be included in scoping and screening. Given that populations of breeding seabird qualifying features at SPAs are afforded protection throughout the year, projects or plans remote from the breeding colony site should be subject to the HRA process regardless of time of year at which birds may interact with those projects/plans, if an impact pathway exists. Therefore, there is a need for an HRA and EIA to consider species at colonies that are within foraging distance of the proposed development during the breeding season, and to also consider assessment of impacts to birds from these colonies in the non-breeding season.

3.69. In Table 23-1 JNCC notes that for common guillemot outside of the Northern Isles, JNCC recommend a foraging range of 95.2km, which excludes data from Fair Isle collected during years in which the species was thought to show unusual foraging ranges due to lack of food. For razorbill outside of the Northern Isles, JNCC recommend a foraging range of 122.2km, which excludes data from Fair Isle collected during years in which the species was thought to show unusual foraging ranges due to lack of food. For northern gannet at Grassholm SPA JNCC recommend a foraging range of 516.7km based on site-specific tracking data. These foraging ranges will identify SPAs which should be screened in for further consideration as part of the HRA process. Additionally, NRW TE requests that site-specific tracking data are available e.g. for northern gannet at Grassholm SPA should be assessed in addition to the Mean Max +1SD foraging ranges from Woodward *et al* 2019. These foraging ranges will identify SPAs and SSSIs which should be screened in for further consideration as part of the HRA and EIA process.

3.70. In Table 23-2, JNCC, NRW TE and RSPB indicate that many features of SPAs with foraging ranges which overlap the project array area have been missed in this table. The exercise should be repeated. For example, some missing SPAs include the Isles of Scilly SPA (European Storm Petrel, and assemblage which includes Manx shearwater, northern fulmar and Atlantic puffin as named components) and several SPAs including Manx shearwater as a feature across the western UK. It is not clear why this table does not include many more SPAs. JNCC notes that the text states “Once the ornithological receptors have been established, the foraging ranges set out in Table 23-1 will be used to identify any further designated sites, beyond those listed in Table 23-2, that will need to be assessed as part of the EIA”. However, it remains unclear what the purpose of Table 23-2 is, if it is not to conduct a full review of SPA features within foraging range, that could later be excluded if not present in ornithological characterisation surveys. NRW TE is in agreement that the list of sites and designated features needs to be significantly expanded to include all designated sites within mean max +1SD foraging ranges (Woodward *et al* 2019) which overlap with the project array. These foraging ranges will identify SPAs which should be screened in for further consideration as part of the HRA process and SSSIs for the EIA. RSPB also stresses that possible adverse impacts may be applied to a range

of birds (including seabird features of SPAs and SSSIs) both breeding and non-breeding populations over a wide area of search; to include seabird features within their mean maximum foraging ranges.

3.71. RSPB indicates that the Balearic shearwater and appropriate SPAs allocated/designated for this species should be also considered. This is Europe's only critically endangered seabird which occurs in Welsh waters including the Celtic Sea (Phillips *et al*. "Consistent concentrations of critically endangered Balearic shearwaters in UK waters revealed by at-sea surveys." Ecology and Evolution (2020).)

3.72. RSPB indicates that Table 23-2 should also include the following international sites:

- Aberdaron Coast and Bardsey Island SPA
- Isles of Scilly SPA
- Great Saltee SPA (Republic of Ireland)
- SPAs designated for Balearic shearwater
- SSSIs which are components or underpin SPAs

RSPB also indicates that some of the SSSI features for those listed are incorrect for example, the designated features of the Skerries are incorrectly listed as Herring gull, lesser black-backed gull and puffin. Whereas, the qualifying features are Arctic tern, common tern and roseate tern. RSPB recommend you to liaise with the relevant SNCBs to obtain the correct details of relevant designated sites.

3.73. JNCC and NRW TE strongly recommends the review of additional data to be used in conjunction with data from digital aerial surveys (section 23.4) to further inform several aspects of the screening, EIA and HRA assessments. For example:

- Tracking data to demonstrate use of the project array area and colony of origin, which is likely available for several species/colonies of relevance (e.g. gannet at Grassholm SPA, several Manx shearwater colonies). This may potentially also inform flight height and flight speed parameters for use within collision risk modelling (noting that discussion with SNCBs would be required in advance of relying on such information that is not currently included within SNCB advice around generic parameters).
- Colony monitoring to inform demographic parameters for use in Population Viability Analysis (PVA) (e.g. Skomer common Guillemot long-term monitoring study).

3.74. NRW TE agrees with the 4km buffer for the array area and cable route being applied for the two years of digital aerial surveys (section 23.4). However, NRW TE encourages you to provide details on survey design and coverage so that NRW TE can comment on whether or not it is sufficient. NW TE would welcome early engagement and discussion with you regarding survey requirements.

3.75. NRW TE would like to understand how you propose to determine flight height (section 23.4 and 23.7). Flight height analysis from digital aerial footage has not yet been proven, or accepted by SNCBs so generic flight heights from Johnston *et al*.

(2014) should also be used in assessing collision risk. As part of the Collison Risk Mortality CRM assessment, applicants are advised to use the Basic Band model option 2 (Johnston *et al*, 2014) using flight height data. Discussions between the SNCBs and digital aerial providers are ongoing, but in the interim, until these investigations are completed, use of Johnston *et al*. (2014), is considered appropriate.

3.76. RSPB indicates that the scoping area for the EIA should be denoted by mean-maximum foraging ranges from seabird SPAs and SSSIs. RSPB note you reference to Thaxter *et al* (2012), the initial standard of mean-maximum foraging ranges based on seabird tracking data and more recent studies, Future of the Atlantic Marine Environment (FAME) and Seabird Tracking and Research (STAR) projects. Wakefield *et al*, 2017 should be used with caution when applied to Lundy.

3.77. RSPB indicates that based upon the Lundy 2017/18 Manx shearwater survey and the 2021 Cliff nesting survey, Lundy now supports over 27,000 seabirds (i.e. above the 20,000 seabird assemblage SPA qualifying threshold) including 5,504 pairs Manx shearwater, which also exceeds the published international importance threshold for this species.

3.78. With regards to site-specific ornithological surveys and baseline data, RSPB indicates:

<u>For offshore</u>:

- Survey methods must comply with up-to-date and best practice guidance. There are limitations associated with aerial surveys including the timing of flights being confined to limited hours of daytime owing to visibility and logistic requirements. Thus, it is crucial to consider the nocturnal and crepuscular activity patterns for all seabirds, especially given the high prevalence of nocturnal species.
- The most up to date information should be used including cliff nesting seabirds on Lundy in 2021. The RSPB can provide this information, which is not yet published. It should also be noted that evidence for the importance of the Celtic Sea for some species (e.g. Wakefield *et al*, 2017 which covered four species, kittiwake, shag, guillemot and razorbill) should be used with caution based on the age of the colony data used in the modelling. Where modelling is based upon old datasets (e.g. Seabird 2000) and where the populations of seabirds at colonies such as Lundy have changed significantly since, re-modelling should be undertaken to use the latest census data.
- RSPB strongly recommend that the developer opens discussions with ornithologists from NRW, NE, RSPB and with other experts who are working on a number of on-going seabird study projects, including tracking data. This data will be of importance in the context of temporal limitations of the survey method, especially for shearwater species. It will also be of benefit for parameterising the collision risk and apportioning models.

<u>Onshore</u>

- RSPB understand that the cable landfall and route corridor are in proximity to the Castlemartin Coast SPA and Angle Peninsula Coast SSSI which are designated for chough. Surveys for chough are not adequately defined in section 8.4.4.1. The RSPB can provide terrestrial bird data for the onshore options, including chough data, and would welcome the opportunity to offer further advice on suitable onshore ornithological survey methods. You recognise the potential for a variety of onshore bird surveys which will include a 100m buffer. Surveys under consideration include breeding and wintering bird surveys. Guidance on appropriate bird survey methods can be found in "Bird Monitoring Methods: A Manual of Techniques for Key Species" Gilbert, G. Gibbons, DW and Evans, J. Pub. RSPB, BTO, WWT, JNCC, ITE Sandy 1998. ISBN 1 901930 03 3

3.79. JNCC indicates that in Table 23-3, the due to the lack of evidence, mortality effects resulting from displacement of diving birds due to underwater noise (e.g. UXO detonations) cannot be excluded for the *Construction of decommissioning Project Phase* at this stage. Furthermore, Table 23-3 indicates that creation of roosting habitat as a positive but JNCC would like also to note potential increase in collision risk as a result of this increased attraction for certain species. Related to this, benthic community structures may change as a result of floating wind infrastructure, and this could potentially increasing presence of some seabird species putting them at risk of increased collision.

3.80. NRW TE consider that the introduction of platforms for the creation of roosting habitat for birds (Table 23-3) should also be assessed with regards the potential increased collision risk.

3.81. RSPB notes that Seabird Food Prey items should be properly considered in the assessment. The RSPB recently commissioned desktop work focused on 11 species of forage fish, including Sandeel, Sprat and Herring which are key food prey items for seabirds (Campanella and van der Kooij, 2021). Spawning and nursery grounds of forage fish in Welsh and surrounding waters. Cefas Project Report for RSPB, 65pp). This report (and associated spatial data) provides information on the forage fish community in Welsh and surrounding waters, including the Irish and Celtic Seas and the western English Channel. Given that several forage fish (prey) species in the northeast Atlantic have shown major changes in distribution and abundance, up-to-date information on their recent distribution patterns is vital. The evidence-base for some food prey species such as sand eel, sprats or herring is either old or there is a lack of data (sprats and herring) and we would therefore recommend that appropriate surveys of these species are included within the site or areas where cumulative impacts could occur.

3.82. RSPB notes that nocturnal seabirds may be attracted to the offshore project infrastructure lighting causing them to become disorientated and/or increase their risk of collision with the offshore arrays (Table 23-3). The ongoing Llŷr Project offshore bird surveys being carried out will provide information to inform which species are present in the area. However, it is to clarify that there is no uncertainty about the attraction of fledgling shearwaters to light sources in general but only about the magnitude of this effect from offshore wind turbines. It should be highlighted that the assessment of this sensitivity will be made more difficult by the temporal

limitations of the survey method and therefore the tracking data will be of value to gain the best possible understanding without any direct assessment.

3.83. RSPB indicates that without detailed information regarding the proposed development in its entirety, it is not possible to consider appropriate mitigation. RSPB acknowledge that baseline data from site-specific surveys will inform the need for mitigation measures. RSPB will be happy to discuss mitigation and feasibility of potential options with the developer once the baseline is established.

3.84. JNCC are content with the 4km array buffer proposed (section 23.7), given the species present in this area. However, since there is no detail provided on survey design, coverage etc JNCC cannot comment any further on whether coverage is sufficient. There is no mention of density surface modelling; is this intended to be undertaken to inform density and spatial distributions? JNCC would like to stress that they are not satisfied with regard to accuracy of flight heights estimated from digital aerial survey data. As such, generic flight heights (from Johnston *et al*. (2014)) should also be used in collision assessments (with site specific flight heights shown as context or if desired, used in additional modelling for consideration).

(24) Marine Archaeology

3.85. We remind you that Historic England have no jurisdiction in Wales, as it wrongly stated in the report (Ancient Monuments are Archaeological Areas Act 1979, Paragraph 24.2.2.)

3.86. The Historic Environment (Wales) Act 2016 should be added to the list of relevant legislation given in 24.2. Regulatory and Planning Policy Context. Also, reference should be made to the Protection of Wrecks Act 1973 which is still one of the key pieces of UK-wide legislation for the protection and management of historic shipwrecks.

3.87. The RCAHMW indicates that reference should be made to (section 24.5) recently issued (2021) guidance by the Crown Estate regarding the provision of WSIs for offshore wind schemes:

https://www.thecrownestate.co.uk/media/3917/guide-to-archaeological-requirements-for-offshore-wind.pdf

3.88. Formal reference should be made to Policy_SOC05 (Historic Assets) of the Welsh National Marine Plan (WNMP), with particular regard to the stated WNMP requirement to ‘avoid, minimise, mitigate’ impact on historic assets.

3.89. The RCAHMW would like to stress that a programme of marine archaeological geophysical survey should be put in place (rather than an option as stated in section 24.8) in order to fully understand and assess the marine archaeology located within the study area during the EIA process.

(25) Shipping and Navigation

3.90. Trinity House have indicated that a full Navigation Risk Assessment will be expected containing:

- A comprehensive vessel traffic analysis in accordance with MGN 654.
- An adequate assessment of the possible cumulative and in-combination effects on shipping routes and patterns.
- The consideration and assessment of a potential "corridor" between the Llyr 1 and Llyr 2 array areas, including future traffic patterns.

3.91. Trinity House consider that this development will need to be marked with marine aids to navigation by the developer/operator in accordance with the general principles outlined in IALA (International Association of Marine Aids to Navigation and Lighthouse Authorities) Guideline *G1162 - The Marking of Offshore Man-Made Structures* as a risk mitigation measure. In addition to the marking of the structures themselves, it should be borne in mind that additional aids to navigation such as buoys may be necessary to mitigate the risk posed to the mariner, particularly during the construction phase. All marine navigational marking, which will be required to be provided and thereafter maintained by the developer, will need to be addressed and agreed with Trinity House. This will include the necessity for the aids to navigation to meet the internationally recognised standards of availability and the reporting thereof.

3.92. Trinity House considers that an assessment of impact on existing aids to navigation is needed.

3.93. A decommissioning plan, which includes a scenario where on decommissioning and on completion of removal operations an obstruction is left on site (attributable to the project) which is considered to be a danger to navigation and which it has not proved possible to remove, should be considered. Trinity House indicates that such an obstruction may require to be marked until such time as it is either removed or no longer considered a danger to navigation, the continuing cost of which would need to be met by the developer/operator.

3.94. Trinity House indicates that there is a possible requirement for navigational marking of the export cables and the vessels laying them. If it is necessary for the cables to be protected by rock armour, concrete mattresses or similar protection which lies clear of the surrounding seabed, the impact on navigation and the requirement for appropriate risk mitigation measures needs to be assessed.

(26) Commercial Fisheries

3.95. Section 26.4 reads: "Average yearly landings at Milford Haven total 686,239 tonnes at a value £1,026,295,194." NFFO points at this as an obvious inaccuracy that should be checked. Whilst the Milford Haven fishing fleet is undeniably industrious and successful, it seems unlikely that it has ever landed over £1 billion of fish, particularly as this is more than the entire UK fleet has landed in some recent years.

3.96. NFFO disagrees with the assessment of the likely impact on fishing businesses of the construction of this wind farm. Table 26.1 assumes that the "loss or restricted access to commercial fishing grounds" during the operational phase of the project will be temporary or partial, at least for static gear fishing vessels. NFFO disagrees with this assumption as their members have been unanimous in the view

that it will be impossible to safely operate commercial fishing gear within a floating wind farm. The trailing mooring cables and inter-array electricity export cables present a severe snagging hazard and becoming fast on a seabed obstacle is extremely dangerous for any boat. Towed fishing gear would very easily become entangled, static gear also does not remain motionless, static pots routinely move with wind, waves and tide (displacement of 1km or more is not uncommon), hence fishing gear could easily become entangled in a turbine mooring system. Moreover, fisherman trying to haul this gear might not be aware of this until it is too late, and boats become snagged on the unseen obstacle. Therefore, fishing within a floating wind farm is highly unlikely to be possible from either a safety or economic standpoint.

3.97. NFFO considers that fisheries exclusion from the site will create the additional problem of displacement of fishing effort, which the scoping report does not acknowledge. Fishermen forced out of the area by the construction of the site will either have to accept a permanent reduction in their income, or will have to try to mitigate their losses by fishing elsewhere. This will entail increased fuel costs, longer working hours and an enhanced likelihood of gear conflict, as different fisheries attempt to share the same, increasingly restricted grounds. All of this will be exacerbated by the cumulative effects of displacement from the many other floating turbine arrays currently being proposed for the Celtic Sea. These harms to existing local businesses are substantial and reasonably foreseeable and should be with the scope of the Llŷr projects' impact assessment. The assessment should acknowledge this exclusion and displacement (i.e., that commercial fishing will not resume within the footprint of the array post-construction) as a realistic worst-case scenario.

(27) Other Sea Users

3.98. No comments were received on this topic

4. Volume 4: Project Wide Effects

(28) Designated Sites

4.1. Please see comments above on Fish and Shellfish Ecology, Marine Mammals and Ornithology for additional sites which should be scoped in Table 28-1.

(29) Climate Change and Major Accidents and Emergencies

4.1. No comments were received on this topic

(30) Combined and Cumulative Effects of the Project

4.2. JNCC and NRW TE advises that projects which are built and operational and have residual impacts would need to be considered in Cumulative Effects Assessment (CEA). Therefore, developments which have been constructed and have ongoing effects on features of protected sites (e.g., operational wind farms) should be included.

4.3. JNCC and NRW TE also advise that developments within foraging range of those SPAs scoped in for LSE should be included within the in-combination assessment. This may include developments beyond the extents indicated in Table 30-1.

4.4. JNCC and NRW TE are pleased that a variety of sectors/activity types have been considered in Table 30-2 (e.g. Greenlink Interconnector cable project) but understand that the list is far from complete. Additional projects may be relevant based on sites identified as at potential risk of LSE from screening exercise as well as MU overlay with other projects in relation to marine mammals. In addition, strategic plans such as TCEs Aggregates, FLOW and R4 plans will need to be considered in cumulative assessment. Round 4 preferred projects, Burbo Bank OWF, Burbo Bank Extension, Gwynt y Môr, Awel y Môr, Rhyl Flats, Robin Riggs, Walney, Arklow Bank, Celtic Interconnector (cable project) should be added. A series of floating offshore wind projects in the Celtic Sea have been omitted, including Llywelyn, Gwynt Glas, White Cross, and Petroc. There are also several offshore wind proposals within 200km in Irish territorial waters of the Celtic Sea, for example the Emerald Project. Please also note the Marine Energy Test Area (META) has applied for a marine licence variation.

4.5. NRW TE advise that particular attention is paid to temporal and spatial cumulative effects on spawning and nursery habitats for fish receptors, as well as underwater noise.

4.6. NRW TE does not agree with the scoping boundaries for marine mammals and therefore considers the cumulative assessment search areas needs to be revised (Table 30-1). The MU is the appropriate scale for screening of plans and projects for marine mammal impacts into the assessment. Therefore, these should also include the Morlais Tidal Energy Development Zone, Project TIGER, Whitecross FLOW and Awel y Mor.

4.7. In relation to seascape, landscape and visual effects, NRW TE indicates that the Rhoscrowther Wind Farm, Project Erebus (1.7km from the project) and Project Valorous (3km from the project) are likely to result in cumulative effects.

4.8. Although the cable route is not clearly defined in the report, section 8.3 implies it has been confirmed. NRW understand that you intend to work with the Erebus Project (Blue Gem Wind) to possibly integrate the two developments, which may include use of a common export cable route, grid connection location and substation/ control building for the two projects. Furthermore, cable routing has potential for interaction with the Greenlink interconnector cable which needs to be clarified. NRW encourage you to work with neighbouring developers on sharing cable routes and associated infrastructure to reduce cumulative environmental impacts.

(31) Conclusions

4.9. Please refer to comments throughout this report for impacts that should be included. For example, NRW TE advise the following impacts should be scoped in during the operation phase:

- Temporary increase in SSC and sediment deposition leading to contaminant mobilisation, turbidity and smothering effects;

- Indirect habitat loss;
- Disturbance to benthic habitats;
- Habitat alteration;
- Effects of electromagnetic fields (EMF) emissions;
- Changes in hydrodynamics and/or other potential impacts on physical processes that will inform impacts on benthic habitats (see comment above and in Physical Process section).

Please do not hesitate to contact me should you require any clarification or would like to discuss any aspect of this scoping opinion.

Yours sincerely,

Maria Alvarez
Marine Licensing Team
Natural Resources Wales

Approved by:

Dr. Emmer Litt
Marine Licensing Team
Natural Resources Wales

Cc: All Consultation Bodies

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Cyfoeth Naturiol Cymru
Natural Resources Wales

Position statement

NRW's position on the use of Marine Mammal Management Units for screening and assessment in Habitats Regulations Assessments for Special Areas of Conservation with marine mammal features

Reference number: PS026

Document Owner: Marine Programme Planning and Delivery Group

What is this document about?

This document sets out Natural Resources Wales's (NRW) position on the use of Marine Mammal Management Units (MMMUs) and other approaches for screening and assessment in Habitats Regulations Assessments (HRA) for Special Areas of Conservation (SACs) with marine mammal features. Screening is defined here as the first stage of HRA where plans or projects are checked to see if they would be likely to have or there is a possibility of a significant effect on a European site and follows Regulation 63(1), 63(2) and 67 (Tyldesley and Chapman, 2013).

It primarily describes the use of MMMUs as the relevant spatial scale for screening and inclusion of plans and projects in an in-combination assessment. The use of MMMUs is applied to most impact pathways, except for impact pathways where there is strong evidence that an alternative approach is appropriate (e.g., screening distances and disturbance from underwater noise). The use of an iterative/sequential Appropriate Assessment (AA) is advised to accompany the use of MMMUs at the screening stage. This is where an AA is first carried out on the closest site to the impact source / development and if an Adverse Effect on Site Integrity (AEOSI) cannot be ruled out, the next closest site is assessed and so on.

The Position Statement provides a steer on how NRW will consider information to inform HRA advice and present their advice to the Competent Authority.

Who is this document for?

The Position Statement is aimed at:

- Those within NRW who may be advising on Habitats Regulations Assessment (HRA) of SACs with marine mammal features
- NRW Marine Licensing Team, who may wish to understand how this advice should be applied

- Other Competent Authorities (CA) / regulators / UK Statutory Nature Conservation Bodies who may wish to understand our approach and consider its use in conducting HRA on sites with marine mammal features
- Developers and their consultants who wish to understand this approach and submit applications with enough information to allow the CA to assess sites with marine mammal features in the same way

Development of this position

This Position was developed following discussion of a range of potential approaches to screening in HRA, with associated advisory and regulatory risks and benefits, at NRW's Strategic Marine Mammal Issues Group (SMMIG) (including MMMU subgroup), Offshore Renewable Energy Programme (OREP) and Marine Planning and Policy Delivery Group (MPPDG) meetings. External meetings and workshops were also organised to peer review the use of MMMUs in HRA. The approach was approved and adopted in October 2020 by the Marine Programme Board (MPB) within NRW.

This Position does not represent a legal opinion and should not be interpreted as such. Project developers and owners should be advised to seek their own independent legal advice on any matters arising in connection with this Position Statement in respect of a specific activity or development project.

This Position does not prejudice any advice that NRW might provide in our capacity as a statutory advisory or regulatory decision maker.

NRW will update this Position Statement as and when relevant new evidence becomes available.

Contact for queries and feedback

tom.stringell@cyfoethnaturiolcymru.gov.uk

Lead Specialist Advisor: Marine Species; Marine and Coastal Ecosystems Team, Sustainable Places Land and Sea Group, Natural Resources Management Policy Department.

Version History

Document Version	Date Published	Summary of Changes
1.0	10-20	Document published
1.1	05-22	Accessibility update. Following a review, there is no recent published evidence that would warrant a substantive update of this document

Review Date: November 2022

To report issues or problems with this guidance contact Guidance Development

Cyfoeth Naturiol Cymru
Natural Resources Wales

Position Statement

Contents

1. Introduction

What are MMMUs?

Marine mammal management units (MMMUs) are considered to be relevant spatial scales for marine mammal species that represent our best understanding of the structure of biological populations and any ecological differentiation within such populations, and the spatial differences in human activities and management relevant for that population. The boundaries of MMMUs do not just represent population differentiation but also political boundaries (e.g., country/county) or boundaries relevant to the management of human activities (e.g., ICES divisions used for the collection of fisheries data and management of fisheries).

Since 2012, the Inter-Agency Marine Mammal Working Group (IAMMWG), comprising representatives of the UK's Statutory Nature Conservation Bodies (SNCBs) - Natural England (NE), Scottish Natural Heritage (SNH), Natural Resources Wales (NRW), Department of Agriculture, Environment and Rural Affairs (DAERA) and Joint Nature Conservation Committee (JNCC) – have developed and proposed MMMUs for the seven most common cetacean species around the UK. These were approved by the SNCBs' Chief Scientist Group and published in 2015 (IAMMWG, 2015) and have been adopted by SNCBs as the relevant spatial scales for conservation advice on key cetacean species in UK waters (Figure 1).

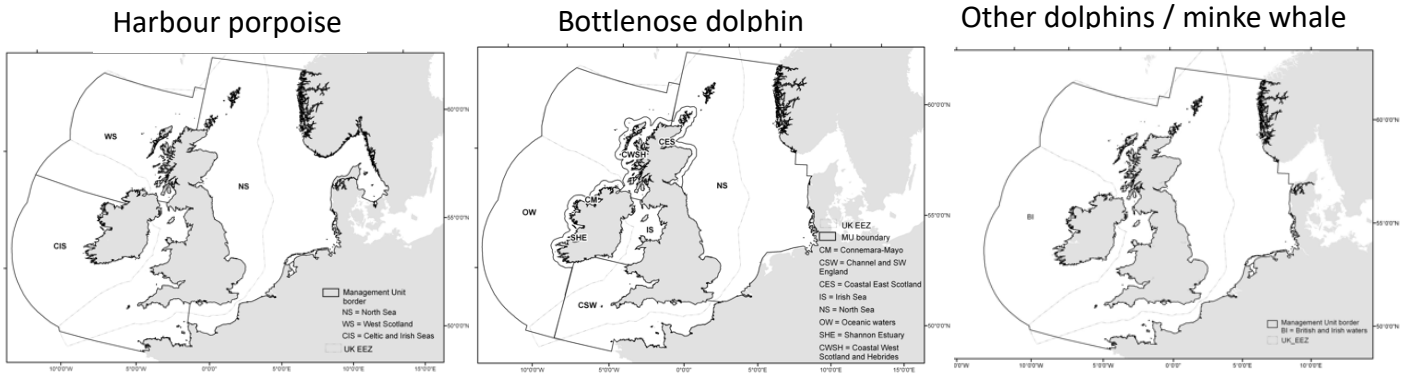

Figure 1. *Interagency marine mammal working group (IAMMWG) marine mammal management units (MMMUs) for cetaceans (IAMMWG, 2015)*

Seal MMMUs were also developed by the IAMMWG at the same time but due to differences in how seals were managed in some parts of the UK (e.g., licensing in Scotland), seal MMMUs were not officially published, and further work is required to develop these (Figure 2). Notably, the extent of those MMMUs stopped at the UK boundary, unlike cetacean MMMUs which cover other Member State waters. This artificial UK boundary in the IAMMWG seal management units does not reflect known seal population movement and distribution or management boundaries e.g., ICES Areas.

Although draft IAMMWG grey seal management units have been used in previous applications and NRW advice, we do not currently advocate their use. Until these are better defined by the IAMMWG, NRW suggest the use of the OSPAR Region III: Celtic Seas area as the appropriate interim management unit (Figure 2). Based on the best available evidence, this area reflects the most appropriate spatial scale of grey seal

movements in the region, and currently the most plausible option among various management unit possibilities. This area has been used in our advice on recent significant marine project applications.

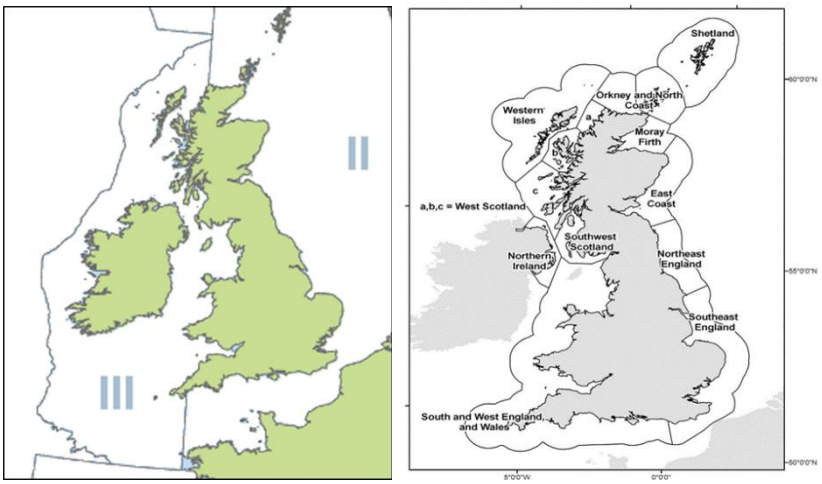

***Figure 2**. Example grey seal management units: OSPAR Region III: Celtic Seas (left); Draft IAMMWG management unit (right)*

What are MMMUs used for?

MMMUs are used to inform conservation advice in several ways, including but not limited to, the relevant spatial scale for assessment of environmental impacts in marine casework (e.g., through HRA, EIA), and the appropriate scale for the selection of Marine Protected Areas e.g., harbour porpoise SACs. Cetacean MMMUs also have population abundance estimates associated with them which underpin conservation advice (IAMMWG, 2021).

Not all UK SNCBs, however, use MMMUs as the spatial scale for considering impacts in HRA and may use different approaches in their advice. Evidence supporting a particular approach may differ between species and between sites and is unlikely to be equivalent for all sites and locations around the UK. As such, different approaches have developed that are suitable for the region at hand and need not be the same for each region. For example, based on the evidence in Wales, an approach that is appropriate in Wales with multiple marine mammal SACs in proximity of each other might not be appropriate for the North Sea where, in the case of harbour porpoise, there is a single SAC in a relatively large area.

While it is usually clear and obvious when an appropriate assessment (AA) is required for impacts from projects that occur inside or overlap with SAC boundaries, how we should assess impacts outside of site boundaries is less obvious. From critically reviewing caselaw on the application of Article 6 (HRA) outside site boundaries (‘offsite impacts’), Article 6 can indeed apply beyond the boundary of the site where there is pathway to impact on the conservation objectives of the site (DTA Ecology and BSG Ecology, 2020). The extent of functional linkage to sea areas outside the site, however, is important here, and depends on the strength of evidence, which varies for species and location. As a point of principle, an impact occurring outside the site needs to adversely affect the achievement of the conservation objectives of the site concerned for it to be considered to affect site integrity.

Informed by these outcomes, this Position Statement represents NRW's advisory position on the use of MMMUs and other approaches relevant to marine mammals in casework advice for HRA, especially in relation to impacts that occur outside of site boundaries. It is advised that this approach is followed by staff in NRW advisory and permitting and this advice is given externally to developers and stakeholders.

2. NRW's position on using MMMUs in HRA

Due to the mobile nature of all Annex II marine mammal features, it is accepted that they do not stay within site boundaries. It is reasonable, therefore, to assume that should an activity occur outside a site, marine mammal features of the sites (several of them rather than just the occasional individual) could travel to and thus be impacted by that activity, wherever it may be in the management unit.

We generally consider that there is the potential for the MMMU to be 'functionally linked' to SACs given, in most cases, the evidence demonstrating the degree of connectiveness and the fact that SACs are dependent on the wider population within the MMMU and represent special areas of sea within it (see Appendix 2; see Chapman and Tyldesley (2016) for information on the concept of functional linkage). The Moorburg case (c-142/16) and the Holohan case (C-461/17) confirm the need to adequately consider offsite impacts, where there is a potential and credible effect on the conservation objectives of a site. When considering likely significant effects on site features from offsite impacts, we must consider the specifics of whether the marine mammal site feature can reach the impact and in doing so whether it would be adversely affected in relation to the conservation objectives of the site and not just whether the impact occurs inside or overlaps with the site. For example, where there is evidence of functional linkage between the area of disturbance and the site, there is a potential for disturbance to affect site integrity when it occurs outside the site and the impact footprint does not overlap with its boundary. However, the degree to which the disturbance affects the conservation objectives, depends on the wording of the objective, the species, the weight of evidence supporting the connection of the site feature to the area of functionally linked sea and the magnitude of the effect. For impact pathways that potentially result in injury or death, the impact to the population is more direct and permanent than that of disturbance, and more likely to credibly affect the conservation objectives of the site and its integrity.

In accordance with NRW's internal guidance on HRA, NRW's consideration of marine mammals in project HRAs is carried out in two stages of the process (the derogations are not covered in this document): Stage 1 – test of Likely Significant Effect; Stage 2 – Appropriate Assessment.

Stage 1 - Test of Likely Significant Effect

At this stage, the Competent Authority consider whether a project either alone or in-combination with other plans and projects is 'likely to have a significant effect' (LSE) on a European site by undermining its conservation objective(s). An LSE is a 'possible' significant effect whose occurrence cannot be excluded on the basis of objective information. There should be an impact pathway and credible evidence of the absence of a possible yet real risk for LSE to be excluded. If the competent authority does not believe the risk to be credible, it can be ruled out at TLSE stage.

This stage – sometimes called screening – is intended to be a preliminary examination rather than a detailed investigation: if detail is required to come to a view, then it is probable that an Appropriate Assessment (AA) is needed. If it is unknown or there is doubt as to an absence of LSE, then an AA should be carried out.

Potential impact pathways are considered, including those occurring outside of site boundaries, with a brief examination of whether there are any reasonably foreseeable effects to marine mammal features of a site (in relation to the conservation objectives) based on credible evidence of a real risk, or a hypothetical risk where guidelines exist.

When considering which sites to screen into the assessment (for each impact pathway and species feature), the relevant MMMU is used as the spatial scale for screening (Figures 3-5). If credible impact pathways are identified, or there is reasonable doubt as to absence of an effect from the relevant impact to a marine mammal Annex II feature, in view of the conservation objectives, then all sites with that feature within the relevant MMMU for that species should be screened in for AA.

For most impact pathways, particularly those associated with potential removals or injury, using the MMMU as the spatial scale for assessment (screening) is therefore most appropriate. For some pathways, e.g., underwater noise disturbance, a different approach may also be relevant, e.g., using screening distances. However, using alternative approaches to screening depends on the weight of the evidence supporting that approach and should be considered on a case-by-case basis in consultation with NRW.

NRW advise the use of MMMUs for screening in HRA but may consider other approaches where adequately justified.

Stage 2 - Appropriate Assessment

An AA is made to establish whether there is any adverse effect on site integrity (AEOSI) in view of the site's conservation objectives.

When projects, impacts and mobile site features occur outside of site boundaries, but within the relevant MMMU, we follow different general principles for assessing each species feature for the AA. There may be exceptions to these principles where expert judgement will be required on a case-by-case basis. In this Position Statement we cover species that are features of Welsh SACs – bottlenose dolphin, harbour porpoise and grey seal:

- ### Bottlenose dolphin

The high level of connectivity between Pen Llŷn a'r Sarnau and Cardigan Bay SACs, and the strong evidence that there is a single population of bottlenose dolphins using both sites means that it is likely that an impact that causes AEOSI to one site would cause the same to the other. Conversely, ruling out an AEOSI on one site is likely to also mean no AEOSI on the other but this would need to be assessed independently.

For bottlenose dolphin: An Appropriate Assessment should be carried out on both bottlenose dolphin SACs: Pen Llŷn a'r Sarnau and Cardigan Bay.

- ### Harbour porpoise

SAC documentation specifies that the population of porpoise associated with the sites is that of the MMMU population: there is no specific number of porpoises associated with the site. The site Conservation Objectives for all harbour porpoise SACs in the MMMU are the same (see Appendix 1) and the sites are of equal importance to the species but vary by season.

For harbour porpoise: An Appropriate Assessment should be carried out on the closest site to the proposed plan or project location first. If AEOSI cannot be ruled out, a sequential/iterative assessment should be carried out considering the next closest site.

If AEOSI cannot be ruled out on the closest site first, then the next closest site is assessed and so on. Where AEOSI is ruled out on the closest site, it follows that AEOSI would also be ruled out at more distant sites. The differing seasonal nature of the sites, however, should be borne in mind during the assessment.

- **Grey seal**

Grey seal is a relatively complex feature to assess due to the seasonal changes to the population; the seals present at a site at one time of year (pupping) may be different to the seals present at another time (moulting/post-breeding). Yet there is a high degree of connectivity throughout the region (i.e., interim management unit). Some life cycle stages may also be more sensitive to certain impacts at certain times e.g., pupping and moulting. The conservation objectives of grey seal features largely relate to pupping but not exclusively; grey seal presence and distribution during non-breeding periods is also an important consideration in the AA.

Some locations in the region/management unit are also important non-breeding haul-outs (e.g., moulting, resting). Several haul-outs occur outside of SACs but seals that use these may be 'SAC animals' or associated with SACs. Additionally, there are differences in the 'importance' of certain pupping locations within the region. Pembrokeshire Marine SAC is the key SAC which supports most grey seal pupping within the Celtic and Irish Seas part of the OSPAR Region III area (interim management unit). As such, this site may need to be routinely assessed if grey seal is taken forward to assessment but will depend on the specifics of the case. Similarly, there are regionally important pupping sites that are not within an SAC, e.g., around Anglesey, but are connected to other SACs in the region. It is advised that the connectivity of these sites outside SACs and their association with SACs is considered when making an AA, and expert judgement will likely be required on assessments of grey seal SAC features on a case-by-case basis.

In general terms, we suspect that animals from further away from the source of an impact are less likely to travel to that location and therefore be affected than those in closer proximity.

For grey seal: An Appropriate Assessment should be carried out on the closest site to the proposed plan or project location first. If AEOSI cannot be ruled out, a sequential/iterative assessment should be carried out considering the next closest site.

Pembrokeshire Marine SAC is also likely to require assessment depending on the specifics of the case.

If the AA is unable to rule out an AEOSI for the closest site, the next closest site should then be considered, and so on. Where an AEOSI is ruled out at the closest site, it is unlikely that AEOSI would occur on sites further away, although Pembrokeshire Marine SAC is likely to require assessment depending on the specifics of the case.

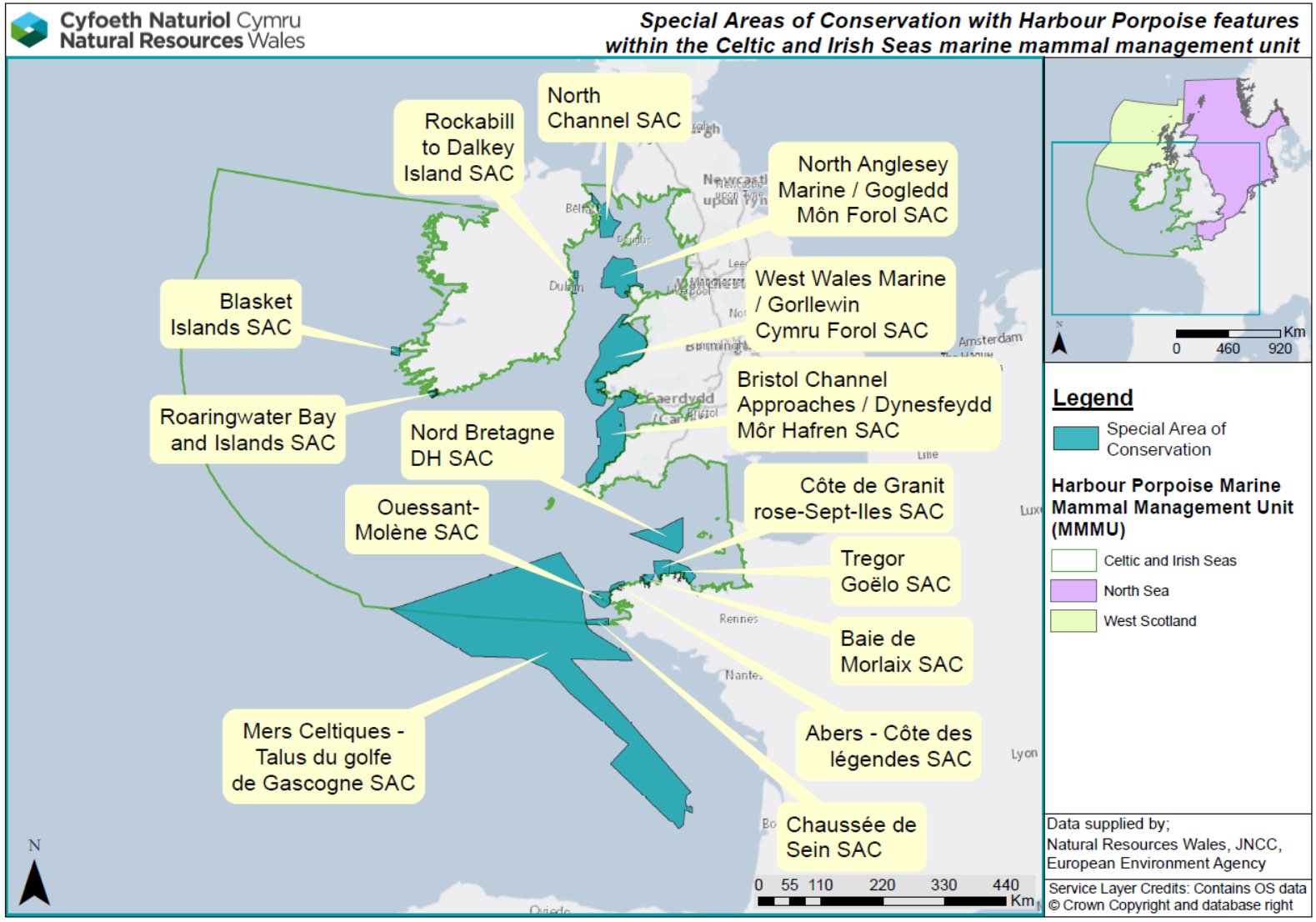

Figure 3. *The Celtic and Irish Seas harbour porpoise MMMU and SACs within it.*

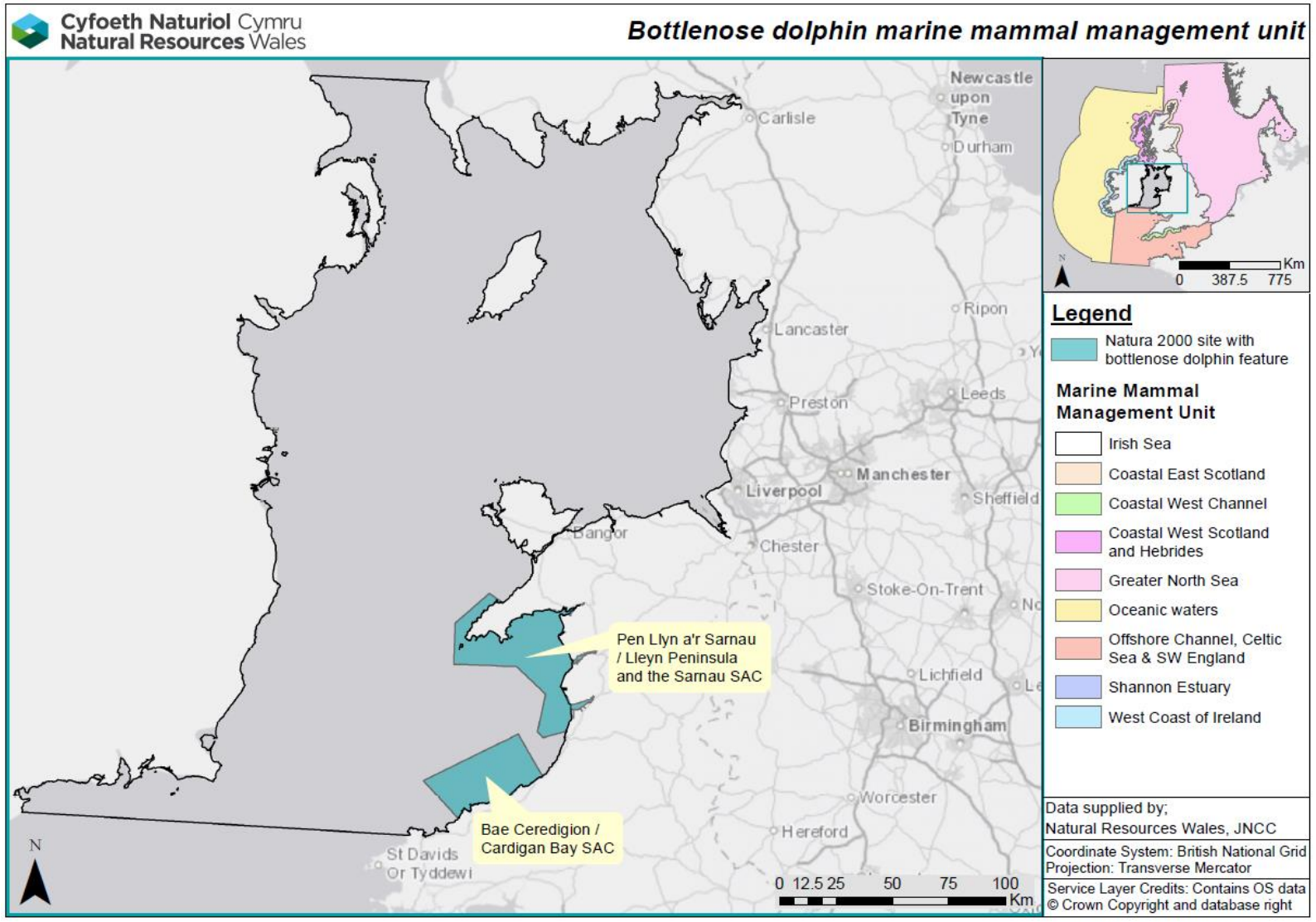

Figure 4. *The Irish Sea bottlenose dolphin MMMU and SACs within it.*

Figure 5. *The OSPAR Region III interim MMMU for grey seal and SACs within it.*

Appendices

Appendix 1: Conservation objectives

Harbour Porpoise

Harbour porpoise is a feature of three SACs in welsh waters, North Anglesey Marine (NAM), West Wales Marine (WWM), and Bristol Channel Approaches (BCA). All sites are single feature sites (harbour porpoise only) and have common conservation objectives: see examples of the SAC 'Conservation Objectives and Advice on Operations' package at Natural Resources Wales / Find protected areas of land and sea.

The sites were identified as having persistently higher densities of harbour porpoises (Heinänen and Skov 2015) compared to other areas of the MU. This is likely linked to the habitats within the site providing good feeding opportunities. Therefore, operations within or affecting the site should be managed to ensure that the animals' potential usage of the site is maintained.

Harbour porpoise is a viable component of the site

This SAC has been selected primarily based on the long-term, relatively higher densities of porpoise in contrast to other areas of the MU. The implication is that the SAC provides relatively good foraging habitat and may also be used for breeding and calving. However, because the number of harbour porpoise using the site naturally varies (e.g., between seasons), there is no exact number of animals within the site.

The intent of this objective is to minimise the risk of injury and killing or other factors that could restrict the survivability and reproductive potential of harbour porpoise using the site. Specifically, this objective is primarily concerned with operations that would result in unacceptable levels of those impacts on harbour porpoises using the site. Unacceptable levels can be defined as those having an impact on the FCS of the populations of the species in their natural range. The reference population for assessments against this objective is the MU population in which the SAC is situated (IAMMWG 2015).

The harbour porpoise is also a European Protected Species (EPS) listed on Annex IV of the Habitats Directive and as such is protected under the Habitats Directive Article 12 and transposing regulations from deliberate killing (or injury), capture and disturbance throughout its range. In addition, Article 12 (4) of the Habitats Directive is concerned with incidental capture and killing. It states that Member States 'shall establish a system to monitor the incidental capture and killing of the species listed on Annex IV (all cetaceans). In the light of the information gathered, Member States shall take further research or conservation measures as required to ensure that incidental capture and killing does not have a significant negative impact on the species concerned'. Site based measures should therefore be aligned with the existing strict protection measures in place throughout UK waters.

There is no significant disturbance of the species

Disturbance of harbour porpoise typically, but not exclusively, originates from operations that cause underwater noise including, as examples, seismic surveys, pile driving and sonar. Responses to noise can be physiological and/or behavioural. JNCC has produced guidelines to minimise the risk of physical injury to cetaceans from various sources of loud, underwater noise[1] . However, disturbance is primarily a behavioural response to noise and may, for example, lead to harbour porpoises being displaced from the affected area.

This SAC was identified as having persistently higher densities of harbour porpoises (Heinänen and Skov, 2015) compared to other areas of the MU. This is likely linked to the habitats within the site providing good feeding opportunities. Therefore, operations within or affecting the site should be managed to ensure that the animals' potential usage of the site is maintained. Disturbance is considered significant if it leads to the exclusion of harbour porpoise from a significant portion of the site. Specifically, draft SNCB advice / guidance for assessing the significance of noise disturbance to a site suggests:

Noise disturbance within an SAC from a plan/project individually or in combination is significant if it excludes harbour porpoises from more than:

1. 20% of the relevant area[2] of the site in any given day[3] , and

2. an average of 10% of the relevant area of the site over a season[4],[5]

The condition of supporting habitats and processes, and the availability of prey is maintained

Supporting habitats, in this context, means the characteristics of the seabed and water column. Processes encompass the movements and physical properties of the habitat. The maintenance of supporting habitats and processes contributes to ensuring that prey is maintained within the site and is available to harbour porpoises using the site. Some evidence shows that the harbour porpoise has a high metabolic rate compared to terrestrial mammals of similar size (Rojano-Doñate *et al.* 2018) and high feeding rates (Wisniewska *et al.* 2016). The harbour porpoise is therefore thought to be a species that is highly dependent on a year-round proximity to food sources and its distribution and condition may strongly reflect the availability and energy density of its prey (Brodie 1995 in Santos & Pierce, 2003). The densities of porpoise using a site are likely linked to the availability (and density) of prey within the site. Harbour porpoise eat a variety of prey including gobies, sandeel, whiting, herring and sprat. However, the diet of porpoises when within the sites is not well known but is likely comparable to that in the wider seas.

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[1] Marine mammals and noise mitigation | JNCC - Adviser to Government on Nature Conservation

[2] The relevant area is defined as that part of the SAC that was designated on the basis of higher persistent densities for that season (summer defined as April to September inclusive, winter as October to March inclusive).

[3] Applicable only in Habitats Regulations Assessments (HRA) due to impracticality of daily noise limit management of activities, but retrospective compliance analysis advised

[4] Summer defined as April to September inclusive, winter as October to March inclusive

[5] For example, a daily footprint of 19% for 95 days would result in an average of 19x95/183 days (summer) =9.86%

There are several operations (Table 2 [in the site's 'Conservation Objectives and Advice on Operations' package]) which potentially affect the achievement of this Conservation Objective. Whilst some plans/projects are unlikely to have a significant effect alone, an effect might become significant when considered in combination with other plans/projects and against the background of existing activities/pressures on the site. Further work is needed to assess historic, existing and planned levels of plans/projects in the sites and to better understand their impacts on the habitats and prey within the sites.

Bottlenose and grey seals

Bottlenose dolphin are a feature of Cardigan Bay (CB) and Pen Llyn a'r Sarnau (PLAS) SACs. Grey seal is a feature of PLAS and Pembrokeshire Marine (PM) SAC. These species and sites have common conservation objectives: see examples of the SAC 'Regulation 37 Advice' packages at Natural Resources Wales / Find protected areas of land and sea

Populations

The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements include:

- population size
- structure, production
- condition of the species within the site.

As part of this objective, it should be noted that for **bottlenose dolphin** and **grey seal**:

- Contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression

For **grey seal** populations should not be reduced as a consequence of human activity.

Range

The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future.

As part of this objective, it should be noted that for **bottlenose dolphin** and **grey seal**:

- Their range within the SAC and adjacent inter-connected areas is not constrained or hindered
- There are appropriate and sufficient food resources within the SAC and beyond
- The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing

Supporting habitats and species

The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance, and populations dynamics of

the species within the site and population beyond the site is stable or increasing. Important considerations include:

- distribution
- extent
- structure
- function and quality of habitat
- prey availability and quality.

As part of this objective, it should be noted that:

- The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term.
- The management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term.
- Contamination of potential prey species should be below concentrations potentially harmful to their physiological health.
- Disturbance by human activity is below levels that suppress reproductive success, physiological health, or long-term behaviour

Restoration and recovery

As part of this objective, it should be noted that for the **bottlenose dolphin**, populations should be increasing.

Appendix 2: Evidence base underpinning MMMUs

The evidence varies for each of the Annex II marine mammal species. Species that are features of SACs around Wales are described below (common seal is not a feature of an SAC around Wales).

Harbour porpoise

Satellite telemetry in Denmark and Greenland indicates that some animals range widely while others show a degree of site fidelity (Nielsen *et al.* 2018). However, there are no studies of harbour porpoise movements in UK - there has been no tagging of wild cetaceans in UK waters, and individual identification e.g., through photo ID, is not thought to be effective due to the general lack of identifying features and the small, elusive nature of the species. However, harbour porpoise is thought to be a wide-ranging species (Read & Westgate 1997; Sveegaard *et al.* 2011), and within the eastern North Atlantic they have generally been considered to behave as a 'continuous' biological population that extends from the French coasts of the Bay of Biscay northwards to the arctic waters of Norway and Iceland (Tolley & Rosel 2006; Fontaine *et al.* 2007). For conservation and management purposes, it is useful to divide this population into smaller units where distinct habitat or human pressures – such as bycatch – exist. As such, three porpoise MUs – Celtic and Irish Seas, North Sea, Western Scotland - have been agreed around the UK (IAMMWG 2015; 2021), and given the evidence underpinning the creation of MUs, we consider the population associated with each MU to form a single inter-connected unit that represents an appropriate scale for wider management of the population.

Fontaine *et al.* (2017), however, recently found some genetic and morphological differentiation in porpoise populations in the NE Atlantic. Around western parts of the British Isles and Bay of Biscay there is a mixing zone between Iberian and North Atlantic 'types' which has led the North Atlantic Marine Mammal Commission (NAMMCO) to propose separate stock identities for West Scotland/Ireland, Celtic Seas and Irish Seas (NAMMCO 2019; NAMMCO/IMR 2019). These stock assessment units differ from management units used by the IAMMWG (SNCBs) and the MSFD/ICES Assessment Units. Further work by the SNCBs is underway to examine these findings.

Bottlenose dolphin

There is strong evidence through photo-ID that coastal bottlenose dolphins in the Irish Sea do not tend to move into Celtic Seas or beyond and are relatively constrained to the Irish Sea Management Unit (Feingold & Evans 2014; Lohrengel *et al.* 2018; Pesante *et al.* 2008b). The largest population of coastal bottlenose dolphins in the UK is found in Cardigan Bay. The population ranges beyond the boundaries of Cardigan Bay (CB) and Pen Llŷn a'r Sarnau (PLAS) SACs (of which it is a feature of both) and has been observed throughout the wider management unit but not beyond (Pesante *et al.* 2008a,b). Photo-ID evidence shows that most individual dolphins move between the two SACs, strongly supporting the idea that the populations of the two SACs are highly connected, and that there is likely a single generic population across the management unit (although a few individuals appear to be faithful to one particular site).

Cardigan Bay SAC is the principal SAC for bottlenose dolphin and was designated primarily (Grade A) for this species, whereas bottlenose dolphins are a secondary (Grade

C) feature of PLAS SAC. However, there is no legislative reason why one site would be more important than the other, and given the strong evidence outlined above, we consider the entire Irish sea MU to be a single inter-connected unit. We therefore consider the population associated with PLAS SAC and CB SAC to be the same and that this is broadly equivalent to the population of the wider MU for purpose of assessment of site integrity.

Grey seal

There is strong evidence (through photo-ID and tagging studies) that grey seals range among the three Welsh SACs and beyond throughout the regional seas (OSPAR Region III area: western coast of Great Britain and neighbouring areas) (Baines *et al.* 1995; Carter and Russell 2018; Cronin *et al.* 2016; Jessopp *et al.* 2013; Jones *et al.* 2013; Keily *et al.* 2000; Langley *et al.* 2018, 2020; Pomeroy *et al.* 2014; Russell *et al.* 2017; Thompson 2011; Vincent *et al.* 2005, 2017). The evidence shows that individual grey seals move between the sites, supporting the notion that the SACs are connected, and that there is likely a single generic population using the region. There is strong evidence that Pembrokeshire Marine SAC is the most important site in the region due to the highest numbers of pups being born there annually (Baines *et al.*1995; Keily *et al.* 2000; McMath & Stringell 2006; Strong *et al.* 2006).

Grey seals show strong site fidelity during the pupping season (Langley *et al.* 2018, 2020; Pomeroy *et al.* 2000), when they give birth and nurse pups on land. The population can therefore be considered a closed population during pupping time and the notion of a SAC population makes some sense during this time. Outside of this season, seals still rely on land for moulting and resting but are less site faithful, with animals dispersed over a wider area (SCOS 2017). Thus, we see a difference in the grey seal population distribution at different times of the year, and animals may be more sensitive to disturbance during pupping and moulting times. Nevertheless, the conservation objectives of Welsh SACs relate to the species in general rather than any specific life stage. It therefore makes sense to consider the population level effects at a wider scale and consider site specific evidence where available. We only have recent (within last 5 years) estimates of SAC level pup production for PLAS SAC. We have older data on pup production in Pembrokeshire Marine SAC and limited relevant data for CB SAC. We assert, however, that effects on the wider population should be considered when conducting HRA given the interconnectivity of the population in the region.

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By email only

08 March 2023

Dear Maria,

MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007 (AS AMENDED) ("The Regulations")

REQUEST FOR SCREENING AND SCOPING OPINION – Llyr 1 and Llyr 2 floating offshore wind Demonstration Projects

Thank you for consulting the Ministry of Defence (MOD) on the above Scoping Opinion and developer's reassessment request in respect of the Llyr Floating Offshore Wind Project. I write to confirm the safeguarding position of the MOD on the information that should be provided in the Environmental Statement to support any application.

The proposal comprises of two 100 megawatt (MW) floating offshore wind development projects in the Celtic Sea, know as Llyr 1 and Llyr 2 (the project). Each proposal site may contain up to 8 wind turbines, each with a maximum blade tip height of up to 306 metres above sea level which would be secured to floating offshore wind platforms moored to the seabed via anchoring systems. Each turbine would have an electrical cable connection to the wind farm inter-array cable work. The offshore export cables may come onshore at one of three landfall options, West Angle Bay, Angle Bay, or Freshwater West Beach and will be selected in conjunction with grid connection options preferably at Pembroke Substation.

The applicant has prepared a Scoping Report of the proposed development dated April 2022. This recognises some of the principal defence issues that will be of relevance to the progression of the proposed development. The relevant sections of the Scoping Report are Volume 2, Section 2 Aviation and Radar, and Volume 3, Section 27 Other Sea Users (specifically 27.3.1 Military Activity, 27.3.2 Unexploded Ordnance (UXO), and 27.3.3 Marine Disposal Sites).

Volume 2, Section 14 Aviation and Radar of the Scoping Report correctly identifies the MOD as a relevant receptor. The use of airspace for defence purposes in the vicinity of the proposed development have been appropriately identified and considered. The Scoping Report considers some of the aviation and radar systems that may be affected by the proposed wind farm.

The report identifies that the turbines have the potential to affect and be detectable to, Primary Surveillance Radars (PSR) and that there are 3 PSR in the wider region, all located in North Devon. It is noted that the Scoping Report does not identify potential impact on the Air Defence Radar (ADR) sited at RAF Portreath. Assessment on the basis of the information currently available has identified no MOD concerns.

The impact of the development on military low flying is identified at Volume 2 Sections 14.4.7 and 14.5 has been scoped in and the applicant states in the Scoping Report that they are committed to lighting and charting the turbines. In the interests of air safety, the MOD will request that the development is fitted with MOD accredited aviation safety lighting in addition to any requirements set out under the Air Navigation Order 2016. The MOD will also require that sufficient information is submitted to ensure accurate marking of the development on aeronautical charts.

Impact on military activity has been recognised in Volume 3, Section 27.3.1 of the Scoping Report. Whilst the Llyr 1 and Llyr 2 array areas proposed do not overlap with any Practice and Exercise Areas (PEXA), the information provided indicates that cable routing passes close to but not through Danger Area D113A (Castlemartin). Given the use of this Danger Area and the existence of a Marine Disposal Site (as identified at section 27.3.3) the installation of this cable within the Danger Area will not be acceptable.

The Llyr 2 array area falls within Oil & Gas blocks containing a highly surveyed route. These highly surveyed routes are retained by the MOD to support national defence requirements. It is necessary to ensure that the navigation of these highly surveyed routes are not obstructed or otherwise impeded by offshore development. The extent and position of highly surveyed routes is not in the public domain.

The Llyr 2 array area conflicts with highly surveyed routes. Wind turbine development within the Llyr 2 array area would therefore be incompatible with defence requirements. The MOD would object to any application for the proposed deployment of floating wind turbines at the Llyr 2 location in its current form. To mitigate this likely objection, it is recommended that the Llyr 2 array area is moved at least 3 nautical miles to the west. There is no requirement for the Llyr 1 array area to be repositioned. Should the developer adjust the location of the Llyr 2 array area it will be necessary for the MOD to review the amended scheme to ensure no further impacts have been introduced and to confirm our safeguarding position.

The potential presence of unexploded ordnance (UXO) has been identified as a relevant consideration. The potential presence of UXO and disposal sites is also a relevant consideration to the installation of cables and other intrusive works that may be undertaken in the maritime environment.

In relation to the Onshore element of the proposed development, section 4.2.4 of the Scoping report expects up to two 132KV export cables per project. The MOD should be consulted to determine any impact on MOD assets. A map of the corridor which will contain the Offshore cable route is included in the Scoping Report (Array, Offshore and Onshore Export Cable Route Search Areas and Onshore Substation Search Area Drawing) we request that we are consulted once the cable route and Onshore landfall location is finalised.

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

Yours sincerely

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Dear Ms Alvarez,

Application by Floventis Energy for Llyr 1 and Llyr 2 Floating Offshore Windfarm under MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007 (AS AMENDED)

Scoping Report Consultation: Llyr 1 and Llyr 2 Floating Offshore Windfarm.

Thank you for your letter dated 13 April 2022 requesting comments on the scoping report provided by Floventis Energy for Llyr 1 and Llyr 2 Floating Offshore Windfarm. The MCA welcomes the opportunity to provide comments under the above Environmental Impact Assessment Regulations, and we would comment as follows:

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

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

The development area carries a significant amount of traffic with a number of important commercial shipping routes to/from UK ports such as Milford Haven which are used by some of the world's largest tankers. Attention needs to be paid to routing so that vessels can continue to make safe passage without large-scale deviations. The likely cumulative and in combination effects on shipping routes should be considered which will be an important issue to assess for this project. It should consider the proximity to other windfarm developments, other infrastructure, and the impact on safe navigable sea room.

It is to be noted that a Navigational Risk Assessment will be submitted in accordance with MGN 654, which supersedes MGN 543 that is mentioned in the scoping report. This should be accompanied by a detailed MGN 654 Checklist which can be found at:
https://www.gov.uk/guidance/offshore-renewable-energy-installations-impact-on-shipping

We would like to re-iterate that a vessel traffic survey must be undertaken to the standard of MGN 654 which should account for seasonal variation and hence a winter and summer vessel traffic survey should be carried out. The surveys should consist of a minimum of 28 days of seasonal data (two x 14-day surveys) collected from a vessel-based survey using AIS, radar and visual observations to capture all vessels navigating in the study area.

The proximity to other offshore windfarms will need to be fully considered, with an appropriate assessment of the distances between OREI boundaries and shipping routes as per MGN 654. The cumulative impacts of other windfarms in close proximity, in particular the proposed Valorous and Erebus offshore wind farms, will change routing. Attention must be paid to the traffic for ensuring the established shipping routes within the Celtic Sea and particularly to/ from the Bristol Channel can continue safely without unacceptable deviations.

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

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

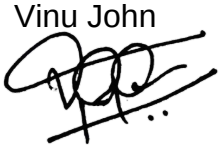
Particular consideration will need to be given to the implications of the site size and location on SAR resources and Emergency Response Co-operation Plans (ERCoP). The report must recognise the level of radar surveillance, AIS and shore-based VHF radio coverage and give due consideration for appropriate mitigation such as radar, AIS receivers and in-field, Marine Band VHF radio communications aerial(s) (VHF voice with Digital Selective Calling (DSC)) that can cover the entire wind farm sites and their surrounding areas. A SAR checklist will also need to be completed in consultation with MCA, as per MGN 654 Annex 5 SAR requirements.

MGN 654 Annex 4 requires that hydrographic surveys should fulfil the requirements of the International Hydrographic Organisation (IHO) Order 1a standard, with the final data supplied as a digital full density data set, and survey report to the MCA Hydrography Manager. Failure to report the survey or conduct it to Order 1a might invalidate the Navigational Risk Assessment if it was deemed not fit for purpose.

On the understanding that the Shipping and Navigation aspects are undertaken in accordance with MGN 654 and its annexes, along with a completed MGN checklist, MCA is likely to be content with the approach.

Yours sincerely,

Vinu John



Navigation Policy Advisor
UK Technical Services - Navigation

Date · Dyddiad 18/05/2022
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Cyngor Sir Penfro

WILL BRAMBLE CBE.
Chief Executive / Prif Weithredwr

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Please ask for
Os gwelwch yn dda gofynnwch am

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Natural Resources Wales

By email only

Dear Sir / Madam

Proposal: **Project Llyr Floating Offshore Wind Project**

Location: **Celtic Sea and Angle Peninsula**

Natural Resources Wales (NRW) consulted Pembrokeshire County Council (PCC) on 13th April 2022 in respect of a request made to NRW, under the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended), for an EIA Scoping Opinion.

By email dated 5th May 2022, NRW confirmed that the request for the EIA Scoping Opinion was not being made under Section 36 of the Electricity Act 1989. However, as the submitted EIA Scoping Report is "project" wide and thus includes terrestrial matters, PCC have taken the opportunity to comment on these (albeit that PCC would presumably be consulted by PEDW at the appropriate time regarding submissions under the Electricity Act 1989).

PCC have considered the "Llyr Floating Offshore Wind Project - Scoping Report" prepared by AECOM Ltd and dated April 2022. This consultation response refers only to those matters within the jurisdiction of PCC, that is land (no coastline is directly affected) within its local planning authority area and any effects on that land from development outside of that area. As such, in this instance, PCC have no comment to make on the EIA Scoping Report on those matters that would be subject to the marine licence application.

On terrestrial matters, the LPA would like to raise a more substantive issue in respect of the number of projects that would all involve the delivery west-east cable routes (within a relatively wide "development corridor") across the Angle Peninsula and significant infrastructure near Pembroke Power Station (sub or converter stations for each project). This would result in an extended impact timeframe during construction

as these projects appear all to be delivered independently as well as cumulative effects from the permanent above-ground structures during operation. I refer you in particular to the Greenlink (under construction), Erebus (applications under the Electricity Act and Marine and Coastal Access Act awaiting determination), and Valorous (EIA Scoping request submitted to NRW February 2021) projects. The in-combination effects of all these projects need to be robustly addressed as part of the EIA. PCC have previously advised of the need for an integrated approach to delivery.

The LPA also wish to raise the following more detailed terrestrial matters from the Scoping Report:

- On the scope of the Landscape, Seascape and Visual Impacts Assessment, one more viewpoint should be provided from Goldborough Road. The number of visualisations (two) appear limited.
- There are dormouse records on the Angle Peninsula and the impacts of the development corridor as well as the in-combination impacts with the other projects of temporary but significant (in terms of dormouse crossing points) hedgerow removal should be addressed (including in relation to bats).
- The vehicular traffic corridor identified should be extended back to include the A4075 to the Finger Post Junction of the A477 Trunk Road (albeit it is identified in text form within the relevant chapter). Furthermore reference is made to the use of Pembroke Port. Whilst routing is not fully known at this stage and it is accepted that this may be waterborne activity, the route from the port to the potential sites via the highway should be considered unless it is to be ruled out. This is of particular relevance as reference is made to possible abnormal loads which would be restricted due to the presence of railway bridges between the trunk road and the southern strategic route.

I trust that this consultation response is beneficial but please contact me if you have any queries.

Yours sincerely

MASimmons

Mike Simmons
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Maria Alvarez
Marine Licensing Team
Natural Resources Wales
Cambria House
29 Newport Road
Cardiff
CF24 0TP

JNCC Reference: OIA-08675
Date: 18 May 2022

Dear Maria,

Llŷr Floating Offshore Wind Project Scoping Report

Thank you for consulting JNCC on the Floventis Energy, Llŷr Floating Offshore Wind Project Scoping Report, dated April 2022, which we received on 14 April 2022.

The advice contained within this minute is provided by JNCC as part of our statutory advisory role to the UK Government and devolved administrations on issues relating to nature conservation in UK offshore waters (beyond the territorial limit). We have subsequently concentrated our comments on aspects of the documents that we believe relate to offshore waters and defer to comments provided by NRW for aspects relating to inshore waters.

The documents reviewed are;

- Llŷr Floating Offshore Wind Project Scoping Report:
  - Volume 1 – The Proposed Project (dated April 2022)
  - Volume 3 – Marine Environment (dated April 2022)
  - Volume 4 – Project Wide Effects (dated April 2022)

The advice below relates to:

- **Marine Ornithology**
- **Marine Mammals**
- **Physical Processes**
- **Benthic Ecology**

Overarching Comments

JNCC would like to take this opportunity to highlight that with regard to Cumulative Effects Assessment, we are of the opinion that projects which are built and operational and have residual impacts would need to be considered in Cumulative Effects Assessment (CEA).

We note that throughout the scoping documents clarification is needed as to whether potential impacts will occur in territorial waters or offshore (beyond the territorial limit). This is not only to make advice provision easier for the consultees, but also to allow the project teams to better understand which impacts may be occurring under which areas of legislation. We request that:

- clarification is provided as to what proposed operations will occur offshore,
- inclusion of the 12nm boundary / territorial limit on maps

The use of the title “Likely Significant Effects” in Sections 16.9, 20.6, 22.6 and 23.6 is confusing. This section lists potential impact pathways to be considered in the EIA which is not clear from the title as the term likely significant effect has significant meaning in the HRA process.

Marine Ornithology Comments

Summary Comments

The screening exercise for Special Protected Areas (SPA) at potential Likely Significant Effect (LSE), as part of Habitats Regulations Assessment (HRA), is incomplete and needs additional work.

The long list of projects to be included within an in-combination assessment is far from complete and needs additional work. This may be best undertaken after a screening exercise has identified the SPAs which may be impacted and upon which in-combination impacts need to be identified.

Detailed Comments

Volume 3 – Marine Environment

Chapter 23. Ornithology

Section 23.3. Study Area, Paragraph 2

For clarity we suggest rewording to “*and selected sites designated for far ranging species with a mean maximum +1 Standard Deviation foraging range (from Woodward et al. 2019) that is greater than 100 km.”*

Table 23-1. Mean maximum foraging range plus 1 standard deviation for species that have a foraging range greater than 100km (Woodward et al. 2019)

Please note that for common guillemot outside of the Northern Isles, we recommend a foraging range of 95.2km, which excludes data from Fair Isle collected during years in which the species was thought to show unusual foraging ranges due to lack of food. For razorbill outside of the Northern Isles, we recommend a foraging range of 122.2km, which excludes data from Fair Isle collected during years in which the species was thought to show unusual foraging ranges due to lack of food. For northern gannet at Grassholm SPA we recommend a foraging range of 516.7km based on site-specific tracking data. These foraging ranges will identify SPAs which should be screened in for further consideration as part of the HRA process.

Table 23-2. Sites and relevant designated features that occur within the offshore ornithology Study Area

There are many SPAs which have features with foraging ranges which overlap the project array area, and which are not included in this table. The exercise should be repeated. For example, some missing SPAs include the Isles of Scilly SPA (European Storm Petrel, and assemblage which includes Manx shearwater, northern fulmar and Atlantic puffin as named components) and several SPAs including Manx shearwater as a feature across the western UK. It is not clear why this table does not include many more SPAs. It is noted that the text states "*Once the ornithological receptors have been established, the foraging ranges set out in Table 23-1 will be used to identify any further designated sites, beyond those listed in Table 23-2, that will need to be assessed as part of the EIA".* However, it remains unclear what the purpose of Table 23-2 is, if it is not to conduct a full review of SPA features within foraging range, that could later be excluded if not present in ornithological characterisation surveys. These foraging ranges will identify SPAs which should be screened in for further consideration as part of the HRA process.

Section 23.4. Baseline

We would strongly urge data in addition to project characterisation digital aerial surveys to be reviewed and that this can be informative to several aspects of the screening, EIA and HRA assessments. For example;

- Tracking data to demonstrate use of the project array area and colony of origin, which is likely available for several species/colonies of relevance (e.g. gannet at Grassholm SPA, several Manx shearwater colonies). This may potentially also inform flight height and flight speed parameters for use within collision risk modelling (noting that discussion with SNCBs would be required in advance of relying on such information that is not currently included within SNCB advice around generic parameters).
- Colony monitoring to inform demographic parameters for use in Population Viability Analysis (PVA) (e.g. Skomer common Guillemot long-term monitoring study).

Table 23-3. Potential impacts of the proposed Project on seabirds

Construction of decommissioning Project Phase;

Mortality effects resulting from displacement of diving birds due to underwater noise (e.g. UXO detonations) cannot be excluded at this stage, because we don't know enough about this.

Table 23-3 goes on to mentions creation of roosting habitat as a positive but should also note potential increase in collision risk as a result of this increased attraction for certain species. Related to this, benthic community structures may change as a result of floating wind infrastructure, and this could potentially increasing presence of some seabird species putting them at risk of increased collision.

Section 23-7. Assessment Methodology

We are content with the 4km array buffer proposed, given the species present in this area. There is no detail provided on survey design, coverage etc so we cannot comment on

whether coverage is sufficient. There is no mention of density surface modelling; is this intended to be undertaken to inform density and spatial distributions?

Note that JNCC are not satisfied with regard to accuracy of flight heights estimated from digital aerial survey data. As such, generic flight heights (from Johnston et al. (2014)) should also be used in collision assessments (with site specific flight heights shown as context or if desired, used in additional modelling for consideration).

Volume 4 – Project Wide Effects

Chapter 30. Combined and Cumulative Effects of the Project

Section 30.3. Approach to Cumulative Assessment

Developments which have been constructed and have ongoing effects on marine birds and/or SPAs should be included. This may include operational windfarms for example.

Table 30-1. Cumulative assessment search area extents

Developments within foraging range of those SPAs scoped in for LSE should be included within the in-combination assessment. This may include developments beyond the extents indicated in Table 30-1.

Table 30-2. Developments with the potential for cumulative impacts ('long list')

We are pleased to see that various sectors/activity types have been considered and not only windfarms (e.g. Greenlink Interconnector cable project). However, this list is far from complete. We would add Round 4 preferred projects, Burbo Bank OWF, Burbo Bank Extension, Gwynt y Môr, Awel y Môr, Rhyl Flats, Robin Riggs, Walney, Arklow Bank, Celtic Interconnector (cable project). Additional projects may be relevant (including from other sectors/activities), we have not undertaken a full assessment but this needs to be undertaken based on sites identified as at potential risk of LSE from screening exercise (noting our comments above in this process).

Marine Mammal Comments

Summary Comments

Relevant Special Areas of Conservation (SACs) for this development have been identified. Potential impacts scoped in and out for the Environmental Impact Assessment are appropriate but need more detail added as this is a Floating Offshore Wind (FLOW) project, and some impacts are still poorly understood.

Detailed Comments

Volume 3 – Marine Environment

Chapter 22. Marine mammals

Section 22.3. Study Area

The management unit (MU) for bottlenose dolphin relevant to this development is OCSW – offshore Channel, Celtic Sea and South West England, not Irish Sea MU.

Section 22.4.1. Cetaceans

Note the SCANS surveys represent a snapshot of cetacean presence, as they represent a single survey conducted in each area. There may be other species present, for example, Risso's dolphins.

Section 22.4.2. Pinnipeds

Please add a note that these are from counts from 2016 – 2019 in the table itself. Also note in the text that the total *population estimate* is "<15"; the figure of <10 is observed individuals on the survey only.

Table 22-3. Designated and protected sites for marine mammals in the Study Area

It would be beneficial if the distance between Marine Protected Areas (MPAs) and the array/cable scoping areas were separated as the potential impacts associated with each area could be different.

Table 22-4. Potential impact pathways in relation to marine mammals during construction, operation and decommissioning of the proposed Project

Potential Impact Pathway;

Effects of underwater sound

Underwater noise during the operational stage is not included as a potential impact pathway; this should be added. The effects of underwater sound during construction and operation will be very different. FLOW cable "thrums" and operational noise are not mentioned and noting that "maintenance potential effects same as construction" is not sufficient. Please note that cable "thrums" have not been well characterised in terms of underwater sound levels and potential to impact marine mammals either for individual turbines or arrays. This may require specific modelling or other studies. How turbine operating noise propagates from floating turbines is also poorly understood.

We note the likelihood of finding UXOs, especially in the inshore part of the study area, is considered high. We highlight a position statement[1] published Defra and signed by (amongst others) JNCC and NRW regarding UXO clearance methods.

Entanglement with mooring lines and cables

Please reference the specific study mentioned. This is an emerging technology which is poorly understood in terms of potential to impact marine mammals and entanglement events of FLOW with marine mammals not well quantified. This should be made clear.

Section 22.7. Assessment Methodology

Note that species and project specific surveys must be conducted for the area in question.

[1] Marine environment: unexploded ordnance clearance joint interim position statement - GOV.UK (www.gov.uk)

Physical Environment and Benthic Ecology Comments

Volume 1 - The Proposed Project

Chapter 4. Description of the Project

Section 4.2.5 Electricity Export Cable

JNCC note that there will be “up to two 132 kV cables per project”. Section 4.2.5 then goes on to state that “the two cables for the projects will be laid in separate trenches with a cable separation of around 50m”. It is unclear to JNCC whether this applies to a scenario where each project requires one or two 132 kV cables. We would request clarity on this matter.

Section 4.2.5 Electricity Export Cable and 4.2.6 Scour Protection

JNCC acknowledge that the amount of rock protection and scour protection are currently unknown but note that the application involves the introduction of hard substrate into a mainly sedimentary environment. Although the changes are not necessarily considered as having a significant impact in this instance, we still encourage the operator to continue working to minimise the amount of hard substrate material used. We note that the long-term effect of the introduction of substratum into naturally sandy or muddy seabeds is not fully understood at present, and should be carefully considered by the regulators. Where stabilisation material cannot be avoided, we recommend using a more targeted placement method e.g. fallpipe vessel rather than using vessel-side discharge methods.

In conjunction with the information to be gathered on the proposed offshore array and export cable corridor through survey work, we highlight that it would be helpful to have details on the following technical aspects relating to the installation and operation of the Project:

- Footprint of area affected by laying of the export cables;
- Footprint of area affected by export cable protection;
- Footprint of area affected by inter-array electrical cables**;**
- Footprint of area affected by inter-array cable protection**;**
- Estimation of electromagnetic fields (EMF) potentially arising from cables both at exterior of cables and at surface of seabed above buried cables;
- Footprint of area affected by placement of drag embedment anchors;
- Footprint of area affected by mooring lines;
- Duration and rate of cable-laying;
- Number and types of vessels to be used in cable-laying operations;
- Routes of vessels for cable works.

Section 4.4.1.2 Pre-Installation Activities

JNCC note that route clearance activities may include pre-sweeping of sandwaves. We would advise that modification of / removal of sandwaves would result in temporary disturbance of the seabed and changes to patterns of sediment transport resulting in morphological change. We would also highlight that any disturbed sediment resulting from these activities should be retained within the same sediment system.

Section 4.4.1.4 Installation of Offshore Electricity Export Cable

As with sandwave pre-sweeping, any material disturbed through cable installation activities such as ploughing or trenching must be deposited at a location that enables it to remain within the same sediment system, for example depositing the disturbed sediment up stream of the trenches to encourage natural backfill.

Volume 3 – Marine Environmental

Chapter 19. Physical Environment

Section 19.4. Baseline

JNCC would like to better understand in what way Floventis Energy and AECOM Ltd expect the baseline to evolve over the lifespan of the proposed project.

Section 19.7.3 Proposed Surveys

JNCC would like to better understand what these proposed survey are as the information provided in Section 19.7.3 is very limited.

Chapter 20. Benthic Ecology

JNCC note that “a buffer distance of 10km of the proposed Project has been considered which encompasses all likely ZOI to benthic receptors within the subtidal”. We await the establishment of the Project’s ZOI as per Section 30.3.2.1. and further clarity as to how the ZOI has been determined.

Section 20.6 Likely Significant Effects and Table 20-1. Potential impacts to intertidal and subtidal habitats and species as a result of the proposed Project

Overall JNCC agree with the potential impacts that will be scoped in and will require further assessment at an EIA stage. However, we would like to highlight that impacts from the introduction of scour protection have not been, and should be, considered here.

Table 20-1. Potential impacts to intertidal and subtidal habitats and species as a result of the proposed Project

JNCC would consider, given that the turbine’s anchor placement will be in place for the duration of the project, that these impacts should be considered **long term** disturbance of the seabed. Further discussion on the timescales of what would be considered a permanent and/or temporary loss may be required.

Section 20.7 Assessment Methodology and 20.8 Conclusion

JNCC acknowledge that key data sources used for the assessment will include “Project-specific survey data” and that “project specific intertidal and subtidal benthic surveys will be completed to ensure the full range of habitats and any potentially sensitive and / or protected species located within proximity to the project are identified”. JNCC would await further details regarding said surveys before providing further comment.

Please contact me with any questions regarding the above comments.

Yours sincerely,

Jillian Whyte
Offshore Industries Adviser
Email: jillian.whyte@jncc.gov.uk
Telephone: 01224 083521

The National Federation of
Fishermen's Organisations

Our ref: NFFO/3850/MJC

Maria Alvarez
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MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007 (AS AMENDED)

REQUEST FOR SCREENING AND SCOPING OPINION – Llŷr 1 and Llŷr 2 floating offshore wind Demonstration Projects

Dear Maria,

Thank you for this opportunity to comment on the scoping report for the Llŷr 1 and Llŷr 2 floating wind farms. The National Federation of Fishermen's Organisations makes the following observations.

There is at least one clear error in the Commercial Fisheries chapter (Volume 3 – Marine Environment, section 26.4 – Baseline), which states that "Average yearly landings at Milford Haven total 686,239 tonnes at a value £1,026,295,194." While the Milford Haven fishing fleet is undeniably industrious and successful, it seems unlikely that it has ever landed over £1 billion of fish: particularly as this is more than the entire UK fleet has landed in some recent years. With such an obvious inaccuracy overlooked in the publication of this report, we hope that the data relied on in assessing the impact of this project will be checked with greater care.

We believe that the view taken in the scoping document of the likely impact on fishing businesses of the construction of this wind farm is overly optimistic. Table 26.1 ("Scoping matrix of potential impact pathways in relation to commercial fisheries during construction, operation and decommissioning of the proposed Project") assumes that the "loss or restricted access to commercial fishing grounds" during the operational phase of the project will be temporary or partial, at least for static gear fishing vessels. We do not agree with this assumption. Our members, even those experienced in fishing within fixed turbine arrays, have been unanimous in the view that it will be impossible to safely operate commercial fishing gear within a floating wind farm. The trailing mooring cables and inter-array electricity export cables present a severe snagging hazard and becoming fast on a seabed obstacle is extremely dangerous for any boat. Towed fishing gear would very easily become entangled. Static gear may not be towed by the boat that deploys it, but it does not remain motionless. Static pots routinely move with wind, waves and tide: displacement of 1km or more is not uncommon. Fishing gear worth thousands of pounds could easily become entangled in a turbine mooring system and the fisherman trying to haul it might not be aware of this until they discovered that their boat had become snagged on the unseen obstacle. Fishing within a floating wind farm is therefore highly unlikely to be possible from either a safety or economic standpoint.

The recently completed Environmental Statement for the nearby Erebus wind farm acknowledges this fact and bases its impact analysis on the realistic worst-case scenario that commercial fishing will not resume within the footprint of the array post-construction. We submit that the impact of the Llŷr projects must be judged in the same way.

Exclusion from the site will create the additional problem of displacement of fishing effort, which the scoping report does not acknowledge. Fishermen forced out of the area by the construction of the site will either have to accept a permanent reduction in their income, or will have to try to mitigate their losses by fishing elsewhere. This will entail increased fuel costs, longer working hours and an enhanced likelihood of gear conflict, as different fisheries attempt to share the same, increasingly restricted grounds. All of this will be exacerbated by the cumulative effects of displacement from the many other floating turbine arrays currently being proposed for the Celtic Sea. These harms to existing local businesses are substantial and reasonably foreseeable and should be with the scope of the Llŷr projects' impact assessment.

As well as these direct impacts on the fishing fleet, we believe that there are potential impacts on fish and shellfish stocks which this scoping document does not adequately capture.

We note that the ecological baseline to be used in assessing these impacts relies largely on studies of the regional marine fauna conducted in 2012 or earlier and yet "No Project specific surveys for fish and shellfish will be undertaken as available data are considered sufficient to undertake an assessment of the identified impact pathways" (Volume 3 – Marine Environment, section 21.8). We have noted a similar reliance on historic research in many other environmental impact assessments. It is increasingly difficult to maintain the credibility of desk-based studies of the marine environment which continually refer back to outdated surveys, despite subsequent environmental changes and the completion of various offshore construction projects with the potential for ecological disruption. Some developers have been willing to conduct new baseline and post-construction monitoring surveys for their projects and these have aided immeasurably the understanding of the actual environmental impacts of offshore development and the mitigation of any that appear to be negative. The extremely valuable work conducted by Ørsted on the Westermost Rough project is an exemplar of what can be achieved.

The scoping report also repeatedly dismisses the potential impacts of electromagnetic field emissions (EMF) on fish, shellfish and cetaceans. Table 21-3 ("Scoping matrix of potential impact pathways in relation to fish and shellfish during construction, operation and decommissioning of the proposed Project") states that "EMF emissions from subsea cables have the potential to affect the foraging and migratory success and behaviour of electro-receptive (such as elasmobranchs), migratory fish (such as salmon), and shellfish. Therefore, the worst-case scenario of cables in separate trenches will be appraised." This entirely misses the crucial point that these cables will *not* be entirely trenched. It is a novel feature of floating, as opposed to fixed, wind farms, that the inter array cables descend gradually from each turbine, buoyed in mid water to achieve a 'lazy wave' configuration and allow for the movement of the turbine. EMF-emitting cables will therefore be suspended for long distances in the water column, not trenched and shielded by sediment or rock armouring. Benthic and pelagic species will therefore be exposed to EMF throughout the array. Rather than ignoring this point and scoping out EMF from the impact assessment as this report proposes, we believe it should be properly

investigated and any potential impact on commercial fish and shellfish stocks or cetacean populations evaluated.

Even without this significant difference in the design of this new type of turbine array, we believe that the report is entirely too quick to dismiss the potential impacts of EMF. Recent research has identified negative effects of EMF on the larval development of crab and lobster [Harsanyi et al (2022) The Effects of Anthropogenic Electromagnetic Fields (EMF) on the Early Development of Two Commercially Important Crustaceans, European Lobster, *Homarus gammarus* (L.) and Edible Crab, *Cancer pagurus* (L.) J. Mar. Sci. Eng., 10, 564] – both important commercial species in this region.

While we accept the necessity for the development of low-carbon energy sources for the UK, this must not come at the expense of excessive environmental harm, or avoidable damage to local businesses and communities. The scope of environmental impact assessments must be comprehensive if licencing authorities are to make genuinely informed decisions, acknowledging and accepting their likely consequences.

Yours sincerely,

Michael Cohen

Deputy Chief Executive

Comiswn Brenhinol Henebion Cymru

Royal Commission on the Ancient and Historical Monuments of Wales

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Dyddiad / Date: 11/05/2022

RE: SC2202 Llyr Floating Offshore Windfarm Scoping Request

Dear Natural Resources Wales,

We have recently reviewed the scoping report for SC2202 Llyr Floating Offshore Windfarm from the perspective of its potential impact on marine archaeology and underwater cultural heritage.

In general, we are in agreement with the main findings of the report; that marine archaeology and cultural heritage must be scoped-in, and we broadly welcome the content of Chapter 24 (Marine Archaeology) of the report

We have some minor comments that we feel would enhance this process which are set out below.

As the maritime archaeologist with the RCAHMW I can act as the contact for any queries arising and I would be happy to liaise with the applicant as required during the EIA process.

Yours

Julian Whitewright

Senior Investigator (Maritime), RCAHMW, julian.whitewright@rcahmw.gov.uk

SC2202 General comments

The separation of the marine (Chapter 24) and inter-tidal zone (Chapter 9) is understandable from a purely geographical definition of the marine baseline lying at the low-water mark. However, the nature of the archaeological material likely to be located between high and low water has more in common with marine archaeology, than terrestrial archaeology. For the purpose of the EIA/ES, we would therefore recommend combining the inter-tidal elements with the marine elements, to give coverage from high water out, and leaving the terrestrial coverage (Chapter 9) to be purely concerned with historic assets above the high water mark.

Specific Comments:

Section 24.2

Reference, at least in summary, should be made to the Protection of Wrecks Act 1973 which is still one of the key pieces of UK-wide legislation for the protection and management of historic shipwrecks.

Historic England have no jurisdiction in Wales regarding the Ancient Monuments are Archaeological Areas Act 1979 as is currently stated in Paragraph 24.2.2.

Section 24.5

Reference should be made to recently issued (2021) guidance by the Crown Estate regarding the provision of WSIs for offshore wind schemes: https://www.thecrownestate.co.uk/media/3917/guide-to-archaeological-requirements-for-offshore-wind.pdf

Formal reference should be made to Policy_SOC05 (Historic Assets) of the Welsh National Marine Plan (WNMP), with particular regard to the stated WNMP requirement to 'avoid, minimise, mitigate' impact on historic assets.

Section 24.8

This states that a programme of marine archaeological geophysical survey '*may*' be required. We would assume that such a programme would automatically be put in place in order to fully understand and assess the marine archaeology located within the study area during the EIA process.

yn rhoi cartref i fyd natur giving nature a home

RSPB Cymru

Maria Alvarez
Marine Licensing
Natural Resources Wales

18 May 2022

By email only to:
Marinelicensing@naturalresourceswales.gov.uk

Your ref: SC2202

Dear Maria,

MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007 (AS AMENDED) ("The Regulations")
REQUEST FOR SCREENING AND SCOPING OPINION – Llŷr 1 and Llŷr 2 floating offshore wind Demonstration Projects

Thank you for consulting the RSPB on the above consultation.

Screening Opinion
We concur with NRW's preliminary review of the documents and consideration that the proposed works fall within Annex 2, under paragraph 3(a)of the EIA regulations.

In addition, we consider that the project may have a significant effect(s) on the environment, as it is in an environmentally sensitive area being within/adjacent to designated sites for nature conservation including Special Protection Areas (SPAs) and Special Areas of Conservation (SACs).

Identification of designated sites that potentially may be affected requires careful consideration. We have concerns with the location of the proposal, being within and/or in close proximity to important areas for seabirds and chough. The construction and operation of the proposed development has the potential to/is likely to result in adverse effects on the following designated sites and their species (in the immediate vicinity):

- Skomer, Skokholm and the Seas off Pembrokeshire SPA
- Grassholm SPA
- Castlemartin Coast SPA
- Limestone Coast of South West Wales SAC
- Pembrokeshire Marine SAC
- West Wales Marine SAC

The RSPB therefore concludes that an EIA will be required to be undertaken in support of the proposal.

Environmental Statement (ES)
The ES should provide a detailed programme of ornithological surveys and comprehensive identification of protected sites and species that could be affected by the proposal. All impacts on nature conservation interests should be fully described, assessed and the significance of impacts clearly explained in the ES. The mitigation hierarchy should be followed to avoid, mitigate or compensate for biodiversity losses. All impacts predicted should include fully worked up possible mitigation in the ES. Monitoring should be employed to verify predictions and identify any unexpected impacts.

Robust evidence should be presented so that the potential environmental impacts can be properly understood and evaluated; and appropriate measures identified to avoid, reduce or, where necessary, compensate for those impacts.

Habitats Regulations

The RSPB considers the proposal will require assessment under the Habitats Regulations (Conservation of Habitats and Species Regulations 2017) including the following:

- Assessment of potential impacts to SPA seabird populations within foraging range through collision risk, barrier effect and displacement;
- Assessment of potential impacts through disturbance and loss of foraging habitat for the chough population of Castlemartin Coast SPA.

Scoping Opinion

The RSPB has the following comments to make in respect of the Scoping document. Overall we consider that the scoping document is generally comprehensive and covers most ornithological issues sufficiently. Nevertheless, there are some additional matters that we consider need further consideration as part of the EIA, including the screening of designated sites and cumulative/in-combination effects. Furthermore, the array area also falls within potential spawning and nursery areas for important seabird foods prey items which include sand eel, herring and sprats. We defer to The Wildlife Trust of South and West Wales (WTSWW) and The Wildlife Trusts (TWT) on the following topics: Marine Mammals and Benthic Ecology. We recommend that the developer opens discussions with WTSWW and TWT for advice on these topics. Our comments are expanded upon below.

<u>Seabird Species</u>

It is essential to establish the presence of vulnerable species of seabird. All species of seabirds need to be considered as part of the screening process for the EIA and HRA. Possible adverse impacts may be applied to a range of birds (including seabird features of SPAs and SSSIs) both breeding and non-breeding populations over a wide area of search; to include seabird features within their mean maximum foraging ranges.

The scoping area for the EIA should be denoted by mean-maximum foraging ranges from seabird SPAs and SSSIs. We note the applicant's reference to Thaxter et al (2012), the initial standard of mean-maximum foraging ranges based on seabird tracking data and more recent studies, Future of the Atlantic Marine Environment (FAME) and Seabird Tracking and Research (STAR) projects. Wakefield et al, 2017 should be used with caution when applied to Lundy (see Seabird surveys and baseline data below).

There is one notable absence in the seabird species listed in the Ornithology section, Balearic shearwater and appropriate SPAs allocated/designated for this species. This is Europe's only critically endangered seabird which occurs in Welsh waters including the Celtic Sea[1].

<u>Designated Sites</u>

The list of designated sites presented in Table 23-2 appears incomplete and there are a number of anomalies regarding the ornithological features of SSSIs. We recommend the following international sites should be considered:

- Aberdaron Coast and Bardsey Island SPA
- Isles of Scilly SPA
- Great Saltee SPA (Republic of Ireland)

[1] Phillips, J., A. Banks, M. Bolton, T. Brereton, P. Cazenave, N. Gillies, O. Padget, J. van der Kooij, J. Waggitt, and T. Guilford. "Consistent concentrations of critically endangered Balearic shearwaters in UK waters revealed by at-sea surveys." Ecology and Evolution (2020).

Furthermore, the ornithological section omits SPAs designated for Balearic shearwater (as mentioned above).

The table omits some SSSIs which are components or underpin SPAs. Some of the SSSI features for those listed are incorrect for example, the designated features of the Skerries are incorrectly listed as Herring gull, lesser black-backed gull and puffin. Whereas, the qualifying features are Arctic tern, common tern and roseate tern. We recommend the applicant needs to seek advice Natural England and NRW (advisory) for correct details of relevant designated sites.

Based upon the Lundy 2017/18 Manx shearwater survey and the 2021 Cliff nesting survey, Lundy now supports over 27,000 seabirds (i.e. above the 20,000 seabird assemblage SPA qualifying threshold) including 5,504 pairs Manx shearwater, which also exceeds the published international importance threshold for this species.

Bird surveys and baseline data

Offshore

Offshore survey methods must comply with contemporary guidance, the most appropriate being detailed in NatureScot (2020) Marine Bird Impact Assessment Guidance Workshop Report. There are limitations associated with aerial surveys including the timing of flights being confined to limited hours of daytime owing to visibility and logistic requirements. Thus, it is crucial to consider the nocturnal and crepuscular activity patterns for all seabirds, especially given the high prevalence of nocturnal species.

As outlined above, there is up to date information on the populations of cliff nesting seabirds on Lundy in 2021. The RSPB can provide this information, which is not yet published. It should also be noted that evidence for the importance of the Celtic Sea for some species (e.g. Wakefield et al, 2017 which covered four species, kittiwake, shag, guillemot and razorbill) should be used with caution based on the age of the colony data used in the modelling. Where modelling is based upon old datasets (e.g. Seabird 2000) and where the populations of seabirds at colonies such as Lundy have changed significantly since, re-modelling should be undertaken to use the latest census data.

We strongly recommend that the developer opens discussions with ornithologists from NRW, NE, RSPB and with other experts who are working on a number of on-going seabird study projects, including tracking data. This data will be of importance in the context of temporal limitations of the survey method, especially for shearwater species. It will also be of benefit for parameterising the collision risk and apportioning models.

Onshore

We understand that the cable landfall and cable route corridor are in proximity to the Castlemartin Coast SPA and Angle Peninsula Coast SSSI which are designated for chough. Although, the route is difficult to determine from the information provided owing to the resolution of Figure 1-1, (Volume 1). Initial onshore surveys have been undertaken and further surveys are planned. However, further surveys for chough are not adequately defined in section 8.4.4.1. The RSPB can provide terrestrial bird data for the onshore options, including chough data, and would welcome the opportunity to offer further advice on suitable onshore ornithological survey methods. The applicant recognises the potential for a variety of onshore bird surveys which will include a 100m buffer. Surveys under consideration include breeding and wintering bird surveys. Guidance on appropriate bird survey methods can be found in *"Bird Monitoring Methods: A Manual of Techniques for Key Species"* Gilbert, G. Gibbons, DW and Evans, J. Pub. RSPB, BTO, WWT, JNCC, ITE Sandy 1998. ISBN 1 901930 03 3

Seabird Food Prey items

The RSPB recently commissioned desktop work focused on 11 species of forage fish, including Sandeel, Sprat and Herring which are key food prey items for seabirds[2]. This report (and associated spatial data) provides information on the forage fish community in Welsh and surrounding waters, including the Irish and Celtic Seas and the western English Channel. Given that several forage fish (prey) species in the northeast Atlantic have shown major changes in distribution and abundance, up-to-date information on their recent distribution patterns is vital. The evidence-base for some food prey species such as sand eel, sprats or herring is either old or there is a lack of data (sprats and herring) and we would therefore recommend that appropriate surveys of these species are included within the site or areas where cumulative impacts could occur.

Nocturnal Activity

Attraction to artificial light is identified in Table 23-3 (Volume 3). Potential impacts of the proposed Project on seabirds:

Nocturnal seabirds may be attracted to the offshore project infrastructure lighting causing them to become disorientated and/or increase their risk of collision with the offshore arrays. The ongoing Llŷr Project offshore bird surveys being carried out will provide information to inform which species are present in the area.

It has to be clarified that there is no uncertainty about the attraction of fledgling shearwaters to light sources in general but only about the magnitude of this effect from offshore wind turbines. It should be highlighted that the assessment of this sensitivity will be made more difficult by the temporal limitations of the survey method and therefore the tracking data will be of value to gain the best possible understanding without any direct assessment.

Mitigation and Monitoring

Without detailed information regarding the proposed development in its entirety, it is not possible to consider appropriate mitigation. We acknowledge that baseline data from site-specific surveys will inform the need for mitigation measures. We will be happy to discuss mitigation and feasibility of potential options with the developer once the baseline is established.

Furthermore, we consider there is a requirement for a thorough monitoring plan, to include monitoring of seabird behaviour in and around the turbines to identify displacement and avoidance behaviours.

Examples of appropriate offshore wind farm monitoring programmes:

- Forth & Tay Regional Advisory Group:

https://marine.gov.scot/ml/forth-tay-regional-advisory-group-ftrag

- European Offshore Wind Deployment Centre (Also known as Aberdeen Offshore Wind Farm):

https://group.vattenfall.com/uk/what-we-do/our-projects/european-offshore-wind-deployment-centre

Cumulative Effects Assessment

We understand that the Applicant intends to work with the Erebus Project (Blue Gem Wind) to possibly integrate the two developments, which may include use of a common export cable route, grid connection location and substation/ control building for the two projects. Although, 8.3 implies that a confirmed route has been identified. Unfortunately, the route is not clearly defined owing to the resolution of Figure 1-1, (Volume 1). Furthermore, cable routing has potential for interaction with the Greenlink interconnector cable which needs to be clarified. We encourage the applicant to work with neighbouring developers on sharing cable routes and associated infrastructure to reduce cumulative environmental impacts.

[2] Campanella, F.& van der Kooij, J.(2021). Spawning and nursery grounds of forage fish in Welsh and surrounding waters. Cefas Project Report for RSPB, 65pp

The list of projects and plans in section 30.3 (Volume 4) is incomplete, for example neighbouring floating offshore wind projects in the Celtic Sea have been omitted, including:

- Llywelyn
- Gwynt Glas
- White Cross
- Petroc

There are also several offshore wind proposals within 200km in Irish territorial waters of the Celtic Sea, for example the Emerald Project.

In addition to the sources identified in section 30.3.3 (Volume 4), Initial Screening of Other Development Projects and Allocations, we advise that relevant projects and plans for consideration may also be found within:

- The Developments of National Significance Register: https://gov.wales/developments-national-significance-dns-applications
- Planning Policy e.g. Local Development Plans, Transport Plans (National and Local) and National Policy Statements.

Area Statements

Regard should also be given to Natural Resources Wales' emerging Area Statements (Marine and South West Wales Areas).

We reserve the right to make further comments in future. If you require further information in relation to this matter, please do not hesitate to contact me.

Yours faithfully,

Simon Hugheston-Roberts
Conservation Officer (Casework)

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