



Department for
Business, Energy
& Industrial Strategy

UK Offshore Energy Strategic Environmental Assessment

Consultation Feedback



© Crown copyright 2022

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit nationalarchives.gov.uk/doc/open-government-licence/version/3 or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: psi@nationalarchives.gsi.gov.uk.

Where we have identified any third-party copyright information you will need to obtain permission from the copyright holders concerned.

Any enquiries regarding this publication should be sent to us at: enquiries@beis.gov.uk

Consultation feedback

The Department for Business, Energy and Industrial Strategy prepared an Environmental Report (ER) as part of its Offshore Energy Strategic Environmental Assessment (SEA) programme, hereafter referred to as OESEA4. OESEA4 assessed a draft plan/programme for offshore energy which includes further rounds of offshore wind farm leasing, and leasing of other marine renewables, further seaward rounds of oil and gas licensing, gas storage (including of carbon dioxide), and offshore hydrogen production, transport and storage. Public consultation on the ER was undertaken between 17th March 2022 and 27th May 2022. Comments were received from 28 organisations and two members of the public, which have been responded to in a Government Response available on the [OESEA4 page of the gov.uk website](#). Where appropriate, the Government Response provides factual and technical clarifications, responses to comments on policy, regulatory and other controls, and also updates to the energy policy context since the OESEA4 ER was published.

This document reproduces the comments received during the consultation in full (redacted as necessary), with the exception of that provided by Uplift who requested that their response was not published in its entirety. The organisations and individuals which responded are:

- Crown Estate Scotland
- The Crown Estate
- Department for Environment, Food & Rural Affairs
- Marine Management Organisation
- NatureScot
- South Downs National Park Authority
- Department of Agriculture, Environment and Rural Affairs (Northern Ireland)
- Department for Communities Historic Environment Division (Northern Ireland)
- Historic England
- Natural Resources Wales
- Joint Nature Conservation Committee - joint response with Natural England
- Natural England - joint response with Joint Nature Conservation Committee
- Bat Conservation Trust
- The Wildlife Trusts
- Carbon Capture and Storage Association

Offshore Energy SEA 4: Government Response

- RWE
- ScottishPower Renewables
- EnerGeo Alliance
- Uplift
- Port of London Authority
- Norwegian Environment Agency
- Norwegian Coastal Administration
- Danish Department of Defence
- Environmental Protection Agency, Species and Nature Protection (Denmark)
- Stad Nieuwpoort, Belgium
- Offshore Energies UK
- Historic Environment Scotland
- Belgian Authorities

Additionally, two responses were received from members of the public.

UK Offshore Energy Strategic Environmental Assessment Future Leasing/Licensing for Offshore Renewable Energy, Offshore Oil & Gas and Gas Storage and Associated Infrastructure

Crown Estate Scotland response

Submitted 26th May 2022

Crown Estate Scotland was established in 2017 and manages land and property on behalf of the Scottish Ministers. Our purpose is to invest in property, natural resources, and people to deliver lasting value for Scotland.

The assets we manage include four rural estates, just under half the foreshore, virtually all the seabed out to 12 nautical miles, rights to gas storage and renewables activities out to 200 nautical miles, salmon fishing rights, retail and office units and rights to naturally occurring gold and silver across most of Scotland. Our strategic objectives set out in our 2020-23 Corporate Plan include supporting the growth of the blue economy, investing in creating great places, and involving people in how seabed, land and coastline are managed.

Crown Estate Scotland welcome the opportunity to input into the Strategic Environmental Assessment process. We note that the scope excludes devolved activities, including offshore wind, wave and tidal leasing in Scotland. It is important to note however, the potential for cumulative impacts between leasing activities in Scotland and other UK offshore energy activities.

Our [Corporate Plan](#) commits Crown Estate Scotland to a plan led approach to leasing, which enables key stakeholders to engage in the process at an early stage. In an increasingly busy marine environment, the co-location of different technologies will become particularly important. Continued collaboration between UK government and devolved administrations, relevant agencies and cross regulatory engagement will therefore be essential to ensure net zero ambitions can be delivered.

Comments are provided below in relation to some specific sections of the SEA report. If you have any queries regarding our response, please contact [REDACTED].

Detailed Comments

P viii – the draft plan/ programme being assessed isn't provided as part of the consultation and therefore we would welcome further clarity in this section on what the plan/ programme is.

P xxiv and P24 – reference is made to 'power-to-gas'. Please note these terms can refer to the production of any gaseous fuels and not just the generation of hydrogen from excess/otherwise curtailed offshore renewable production.

P 4 Given the complexities of who plans/licenses/leases projects related to Carbon Capture Storage (CCS), we would welcome more detail in the document to clarify the different organisations and responsibilities involved (e.g. this could include a reference to Marine Scotland's [National Marine Plan](#) in which provides the overarching framework for all marine activity in Scotland).

P 27 – reference is made to a targeted Carbon Capture and Storage licensing round. We recommend that reference is also made to the possibility of future leasing as well as a licensing round i.e. ‘a targeted licensing **and leasing round** could be undertaken within the next five years’. This would demonstrate a collaborative and co-ordinated approach between those organisations responsible for licensing and those for leasing.

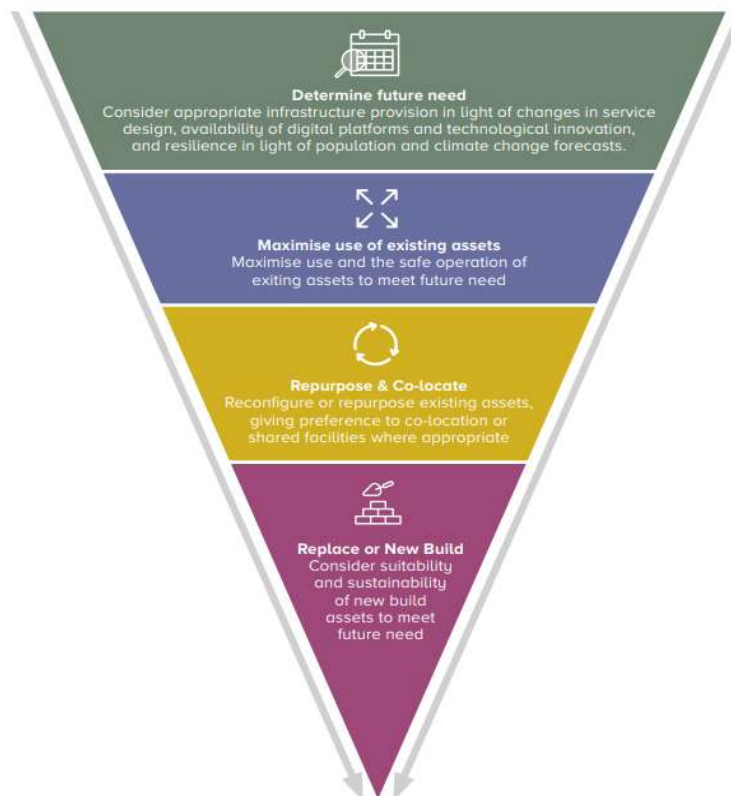
P30 Suggest the reference to ScotWind is changed to state:

‘Crown Estate Scotland announced the awards for the ScotWind auction in January 2022, with option agreements offered to 17 projects with a total combined capacity of almost 25GW. The amount of capacity delivered will depend on a number of factors including developers securing the necessary consents, licences, and finance.’

P44 – we welcome reference to Crown Estate Scotland’s new offshore wind leasing round for Innovation and Targeted Oil and Gas (INTOG) but recommend that the link to the Marine Scotland consultation is updated to refer to the latest Marine Scotland planning document which includes final areas of search for INTOG – see [Sectoral Marine Plan for Offshore Wind for Innovation and Targeted Oil and Gas Decarbonisation \(INTOG\) Initial Plan Framework | Marine Scotland Information](#).

P52 – reference is made to the main stages of offshore hydrogen production and transport, including the construction of export cables. We recommend that options to re-purpose existing infrastructure are also considered to help reduce the impact of infrastructure provision. Scottish Government’s’ [Infrastructure Investment Plan – 2021-22 to 2025-26](#) sets out a infrastructure hierarchy (see below) which highlights the need to maximise the use of existing assets, repurpose and co-locate assets where possible, before considering the construction of new infrastructure.

Infrastructure and Investment Hierarchy



P54 Provides a table outlining potential activity by Regional Sea (Table 2.1). In the CCS column, reference is made to 'Nearby clusters of high emissions, such as the Humber and Teesside, combined with the availability of storage sites make Regional Sea 2 particularly prospective'. Whilst this statement is accurate, it may underplay the potential CCS activity. We recommend that reference is also made to the potential for CCS activity in Scotland, which has around two thirds of the UK's CO₂ storage potential. It is notable that several nominations were recently made to NSTA (April 2022) in the last few weeks for CCS sites in Scottish waters. It is also worth highlighting that the south Wales area, which, has significant industrial emissions, does not have any gas storage of its own, and will therefore need to ship their emissions to either Scotland/England.

We also recommend that the introductory text above Table 2.1 makes it clear that the table excludes offshore wind, wave and tidal deployment in Scottish waters. We recognise that these activities are not part of the SEA scope, however, given the scale of current and future leasing activities in Scotland it is worth re-emphasising this point. We also recommend further reference to ScotWind, INTOG leasing, Wave and Tidal leasing in Scotland as part of the cumulative effects assessment on P570 (Section 5.16.13 - Potential for transboundary effects). Our [spatial data hub](#) provides details of existing agreements.

P191 – provides a figure (Figure 5.10) illustrating 'Wind farm zones, and current and potential export cabling installed in relation to potentially sensitive MPAs'. Figure 5.10 includes ScotWind agreements but excludes Marine Protected Areas (MPA). See Marine Scotland's Information hub for details of the MPS network [Marine Protected Area \(MPA\) network | Marine Scotland Information](#).

We suggest that Figure 5.10 also includes INTOG areas of search, as identified in Marine Scotland's Initial Plan Framework for INTOG – see [Sectoral Marine Plan for Offshore Wind for Innovation and Targeted Oil and Gas Decarbonisation \(INTOG\) Initial Plan Framework | Marine Scotland Information](#)

P461 – as highlighted above, we welcome the reference to INTOG leasing but recommend reference is made to the most up to date Marine Scotland planning document [Sectoral Marine Plan for Offshore Wind for Innovation and Targeted Oil and Gas Decarbonisation \(INTOG\) Initial Plan Framework | Marine Scotland Information](#).

P623 – We welcome the reference to the current lack of consenting route for the transport, storage and production of hydrogen offshore and suggest that the SEA recommendations make it clear that further action is required to address this.

'Unlike natural gas and carbon dioxide, there is currently no consenting route for projects transporting hydrogen by offshore pipeline, or its storage in geological formations, and similarly, the consenting route for hydrogen generation offshore requires definition'.

P663 – we welcome the reference to explore opportunities for co-location. As highlighted above, continued collaboration between multiple agencies and cross regulatory engagement is essential to overcome potential barriers and optimise use of the marine environment.

We also suggest that all OGA references are changed to NSTA given the recent name change.

The Crown Estate: consultation response

Offshore Energy Strategic Environmental Assessment (OESEA4) Environmental Report

May 2022

1 Summary

The Crown Estate welcomes the Department for Business, Energy and Industrial Strategy's (BEIS) Offshore Energy Strategic Environmental Assessment (OESEA4) Environmental Report and the opportunity to respond to the consultation. We recognise the importance of ensuring that the draft plan/programme assessed by the OESEA4 leads to the sustainable development of offshore energy resources to deliver the UK's Net Zero targets, and to maximise the climate change benefits associated with these activities. The Crown Estate is part of the SEA Steering Group and we would like to reiterate our wiliness and enthusiasm for continuing our engagement in the SEA process as the OESEA4 is finalised and its conclusions adopted.

This consultation response focuses on the elements of the Environmental report which relate to renewable energy and carbon dioxide transport and storage. Our response is organised into high-level comments on the OESEA4 and draft plan/programme, and then specific comments relating to different elements of the plan and SEA recommendations.

2 The Crown Estate

The Crown Estate is a purpose-driven and unique business with a diverse portfolio. We manage the seabed and around half the foreshore in England, Wales and Northern Ireland, playing a fundamental role in the sustainable development of these important national assets and using our data and evidence to facilitate co-location and greater spatial coordination between activities.

Established by an Act of Parliament, The Crown Estate works to create social, environmental and financial value, both now and for the future, for its customers, partners and the nation. We generate 100% of our net revenue profit for the benefit of the nation, contributing £3 billion to the public purse over the last ten years.

As a business, we actively deliver against our purpose: to create lasting and shared prosperity for the nation. We believe we are well placed to create financial, environmental and social value holistically today and for future generations, by drawing upon our unique attributes to address long-term trends and national needs.

We drive our purposeful activity through three strategic objectives, to:

- Take a leading role in stewarding the UK's natural environment and biodiversity
- Be a leader in supporting the UK towards a net zero carbon future
- Help create thriving communities and renew urban centres across the UK

3 General comments

The OESEA4 report is set against the backdrop of the UK Net Zero ambitions and Net Zero Strategy, as well as a rapidly evolving policy environment. Since the publication of the OESEA4 Environmental Report the British Energy Security Strategy (BESS) has been published, which raises UK offshore wind ambition to 50GW by 2030 and flags a number of workstreams aimed at managing environmental issues in more strategic and forward-thinking manner. In addition, Defra have recently consulted on their proposed approach to MPA management and review of assessments made under the Habitats Regulations, with a combined assessment process being considered, as well as proposed changed to environmental impact assessment (EIA). We anticipate consultations on both Highly Protected Marine Protected Areas (HPMPAs) and Marine Net Gain principles in due course. Defra are also progressing their Marine Spatial Prioritisation Programme which is moving at pace to deliver aspects of the BESS, including zones for offshore wind and fisheries.

We view the SEA process as a valuable tool to drive strategic assessment across UK policy ambition for offshore energy, which alongside updated Energy National Policy Statements (NPSs), has the potential to provide more direction and definition subsequent leasing and licensing activity. As such, following the conclusion of this OESEA4 consultation, we would welcome further engagement with BEIS and across UK Government to better understand the opportunities for maximising the value of the SEA process and to ensure join up between the various strands of policy driven work to unlock further offshore development to achieve Net Zero whilst enhancing the protection of the marine environment, and ultimately, driving Marine Net Gain.

We welcome and support the conclusion of the OESEA4 that 'alternative 3' to the draft plan/programme is the preferred option, with the area offered for leasing/licensing restricted spatially through the exclusion of certain areas (i.e. the area to the west of the Hebrides to be excluded from oil and gas licensing), together with a number of mitigation measures to prevent, reduce and offset significant adverse impacts on the environment and other users of the sea. More generally, some helpful spatial considerations are provided as part of the SEA recommendations; however, a policy steer on spatial prioritisation is required. While the OESEA4 is helpful in setting the policy context for future offshore energy leasing/licensing and understanding the strategic environmental implications of such activity, its scope covers several potentially spatially competing activities; consideration of spatial interaction with other seabed users is also required. There is a need for consistent guidance across relevant programmes, policies and plans on how spatial prioritisation could work and how best to manage activities that are currently unable to co-locate.

The Crown Estate is actively involved in Defra's Marine Spatial Prioritisation programme, and in line with our comments made in response to the draft revised energy National Policy Statements in November 2021, we would welcome further engagement with BEIS and across Government on how developments required to reach the targets set out in the OESEA4 and BESS will be considered in the context of policy prioritisation across other use of seabed. We strongly advocate consideration of the seabed as a whole in planning for future leasing and licensing and

balancing use of the seabed against other users of the sea, environmental and biodiversity targets.

We welcome reference in the SEA recommendations to the need for a strategic approach to HRA compensation, as well as ensuring opportunities for offshore energy installations to generate Net Gain are considered from the outset. As a member of the Offshore Wind Acceleration Task Force we are actively looking at the role that The Crown Estate could play in identifying and establishing a mechanism for coordinated and strategic delivery of HRA compensatory measures. We look forward to further collaboration with Defra, BEIS and other departments to define a more holistic and joined up approach to address environmental considerations at a strategic level, reduce uncertainty, and deliver at pace on the UK's Net Zero and Marine Net Gain agendas.

The Offshore Wind Evidence and Change programme is referenced throughout the OESEA4; we welcome recognition of the important role that this collaborative programme is playing, and will continue to play, in facilitating sustainable growth of the offshore wind sector to meet UK Net Zero targets. A number of the SEA recommendations relate to evidence gaps or improvements to best practice and mitigation, and following the conclusion of the SEA process we would welcome further discussion with BEIS on how best these recommendations could be supported by the Offshore Wind and Evidence Programme alongside the SEA Research Programme. We expect to announce a decision on future funding of the Offshore Wind Evidence and Change Programme shortly.

Similarly, we welcome reference in the report to the Marine Data Exchange (MDE), our world-leading platform that hosts the largest database of offshore industry survey data, research and evidence in the world. The Crown Estate has been actively investing in marine data and evidence for over 20 years. We continue to recognise the importance of working in partnership with the wider marine data community to re-use existing data and to reduce the need for new data collection, but where a data gap is identified, investing in survey data collection that can accelerate and de-risk sustainable development and build a more strategic understanding of the seabed. Outputs of the Offshore Wind Evidence and Change Programme and other relevant research are published to the MDE in order to maximise their value and maximise opportunities for cross-sector learning. As a member of the SEA Steering Group, we look forward to continuing our collaboration to ensure alignment on the evolving evidence base and ongoing research priorities across the SEA Research Programme, the Offshore Evidence and Change Programme, and other relevant evidence and data driven work streams.

4 Comments on elements of the draft plan/programme

Offshore wind

We welcome the offshore wind element of the plan and support the inclusion of tethered turbines as part of this scope, especially given the increased ambitions for floating wind contained within the BESS and the greater role this technology will play in our approach to Net Zero. We also welcome consideration of extensions to existing lease areas, as a means of delivering more capacity to the offshore wind pipeline in line with UK targets.

The Crown Estate recognises the strengthening policy and market demand for further offshore wind, e.g. recent British Energy Security Strategy and uplift in UK targets to achieve 50GW by 2030. As reflected in the Environmental Report, we are working at pace to maximise the opportunity to utilise the nation's seabed to support the energy transition as we work to close out Round 4 offshore wind leasing and deliver our Celtic Sea floating wind opportunity. Collectively this new capacity, when combined with what has been potentially made available through the ScotWind process, would mean the offshore wind pipeline totals over 80GW. We will continue to look at further leasing and project enhancement opportunities to enable additional capacity to come forward in due course. We welcome the conclusions and recommendations of the OESEA4 as it is helpful to understand the key considerations that will need to be fed into and shape future offshore wind leasing.

We would, however, like to raise two points for clarification:

- *Context to licensing and leasing (Environmental Report p24):* For offshore wind, the role of the Marine Management Organisation in issuing Marine Licences/deemed Marine Licences is described; however, there is no reference to the marine licensing role of Natural Resources Wales for developments in Welsh waters requiring a Marine Licence.
- *Prospectivity and likely nature and scale of offshore wind activity (Environmental Report p30):* We note the estimated additional offshore wind capacity figures required to meet the Climate Change Committee's Sixth Carbon Budget, and recommend that these are reviewed in light of the updated ambition for offshore wind in the BESS and latest development figures. Our most recent Offshore Wind Operational Report¹ contains the latest view of the UK offshore wind development pipeline and we would be happy to work with BEIS to ensure that following the close of this consultation, the most up to date figures are used in finalising the OESEA4 report and adopting the draft plan/programme under consideration.
- *Non-technical summary - landscape/seascape* - The non-technical summary contains a recommendation that "new offshore wind generation capacity should be sited away from the coast, generally outside 12 nautical miles" in order to reduce impacts on sensitive receptors in coastal waters. However, no such recommendation is made in the main body of the Environmental Report; instead, Recommendation 2 on coastal sensitivities advocates the need for site specific assessment and stakeholder consultation, which we support. We request clarification regarding the status of the 12nm reference in the non-technical summary, since ambiguity regarding the OESEA4 recommendations could be inadvertently constrain development when that was not the intention. We note that a similar disparity was made in the previous OESEA3, which at the time we understood to be a drafting error.

Carbon dioxide transport and storage

We welcome the inclusion of carbon dioxide transport and storage within the draft plan, and note that the recent BESS reinforces the commitment to four carbon capture usage and storage (CCUS) clusters by 2030.

¹ <https://www.thecrownestate.co.uk/media/4095/2021-offshore-wind-report.pdf>

We would like to highlight The Crown Estate's recent joint statement with the North Sea Transition Authority (NSTA) and Crown Estate Scotland (CES) of 29 April 2022² on our renewed commitment to work in close collaboration to help meet the UK Government's ambitious carbon storage targets of 20-30 million tonnes of CO2 emissions per year by 2030, and over 50 million tonnes by 2035. In addition, we have updated our website to provide further details on our role in carbon capture, usage and storage (CCUS), as well as our current focus, which includes active involvement in the Offshore Wind and CCUS Co-location Forum and spatial characterisation work to identify suitable seabed and subsurface areas for carbon storage. Following the conclusion of the SEA process, we look forward to engaging further with NSTA, CES and BEIS on unlocking the UK's CCUS potential.

Following the conclusion of this OESEA4 consultation and the formal adoption of the plan/programme under consideration, we look forward to further engagement with BEIS and the NSTA on how ambitions for CCUS can best be delivered in line with UK targets, alongside the other sectors by the SEA.

Wave, tidal stream and tidal range

We welcome the inclusion of wave, tidal stream and tidal range technologies, as components of a diverse energy mix across the UK. Whilst we believe it appropriate that the draft plan/programme has not set target capacities for these technologies, we look forward to continuing to work with BEIS, Welsh Government and the marine renewable energy industry to understand future opportunities for wave, tidal stream and tidal range deployment. We are open to working proactively to identifying a route to market for these technologies and projects.

We would like to raise the following point of clarification:

- *Context to leasing and licensing (Environmental Report p25):* It stated that "The Crown Estate has not, to date, carried out any wave or tidal stream energy leasing rounds for English and Welsh waters but has offered leases for test devices or small arrays." For clarity, we have not to date carried out leasing for commercial scale deployments; a structured leasing round for wave and tidal stream energy demonstration zones was conducted in 2013.

Hydrogen

We welcome the inclusion of hydrogen within the scope of the draft plan/programme assessed by the OESEA4. However we note that since the publication of the Environmental Report for consultation, the BESS has increased the UK ambition to deliver up to 10GW of low carbon hydrogen production capacity by 2030, with at least half of this coming from electrolytic hydrogen. We look forward to further engagement with BEIS, industry and stakeholders on the role that offshore energy installations can play in delivering this low-carbon hydrogen ambition, and to better understand the opportunities for this sector, including establishing the route(s) to consent.

² <https://www.thecrownestate.co.uk/en-gb/media-and-insights/news/2022-north-sea-transition-authority-the-crown-estate-and-crown-estate-scotland-announce-renewed-collaboration-to-unlock-the-potential-of-carbon-storage/>

5 Comments on the OESEA4 recommendations

Overall, we support and welcome all of the OESEA4 recommendations and believe they are helpful in steering future leasing and licensing activity of the offshore energy sectors covered by the SEA. However, we suggest that these recommendations could go further by identifying some of the key bodies responsible for their uptake and/or delivery, for example translating the spatial considerations into policy steers at the relevant strategic/plan level, through to guidance on how project-level decision making should prioritise different activities and considerations.

We have the following specific comments to make on some of the recommendations:

Recommendation 1: We welcome the recognition that Marine Protected Areas (MPAs) are not intended or treated as strict no-go areas for other activities (noting the anticipated upcoming consultation on Highly Protected Marine Protected Areas), and we support the need for strategic and project-level assessment of the compatibility of proposed developments with a site's conservation objectives. This recommendation could perhaps be strengthened by emphasis the mitigation hierarchy (avoid, reduce, mitigate), in line with Defra's MPA guidance consulted on last Autumn.

Recommendation 2: We support this recommendation and recognition of the particular sensitivities that locations closer to the coast may have, and strongly advocate the requirement for site-specific information gathering and stakeholder consultation at the project level to inform consenting decisions. However, as noted above, there is some discrepancy between this high-level recommendation and a specific reference in the non-technical summary regarding siting new offshore wind developments beyond the territorial sea limit, which we would welcome clarity on.

Recommendation 3: Recognition of the importance of understanding strategic-level effects offshore energy development on shipping routes and vessel traffic is to be welcomed, and aligns with an Offshore Wind Evidence and Change project we are progressing with Trinity House and the Maritime and Coastguard Agency to understand the cumulative effects of offshore wind development on navigation safety. The recommendation advocates important navigation routes being treated as "Clearways" in siting and consenting marine developments; there is a need for supporting work at the plan/policy level to support the identification of key navigation routes and establish such clearways in the decision making framework. We note the link to Defra's Marine Spatial Prioritisation work in supporting this aim.

Recommendation 5: We welcome the suggestion that requirements for safety zones around floating offshore wind developments should be explored; again, this aligns with ongoing work under the Offshore Wind Evidence and Change programme to better understand interactions and opportunities to promote coexistence between commercial fisheries and floating wind. In addition, we note that ORE Catapult have established the Floating Offshore Wind Centre of Excellence (FOW CoE) as a collaborative programme with industry, academic and stakeholder partners, of which BEIS is a partner; it would be helpful to draw in work conducted by the FOW CoE on interactions with other sea users into the SEA Research Programme.

Recommendation 7: In seeking to avoid impacts of leasing/licensing and consenting decisions on other sea users, this recommendation has close links to Defra's Marine Spatial Prioritisation work and other relevant policies set out in the energy NPSs, marine plans and other relevant plans and policies that guide decision making. We agree that this recommendation provides some helpful steer on key spatial considerations, however as highlighted above, we believe further guidance / policy steer is required on the 'prioritisation' to be given to activities where a spatial conflict is unavoidable and opportunities for co-location are not yet apparent. This clear steer should be consistent through all levels of policy and guidance to guide strategic planning and leasing activity through to decisions on individual consents.

Recommendation 8: We welcome reference to the work already undertaken as part of the Offshore Wind Evidence and Change programme to review seabird collision risk mortality and the issue of unused 'headroom' in consented offshore wind capacity, and the recommendation that further work is conducted to secure 'as built' cumulative impact assessment predictions in decision making. We look forward to further engagement with BEIS, Defra and the statutory nature conservation bodies to build upon this work.

Recommendation 9: We support the recommendation that further work is required to better understand the impacts the population-level effects of displacement on red-throated diver, as well as the populations and distributions of the species within and around marine protected areas. We strongly support this recommendation and would welcome the opportunity to partner with regulators, SNCBs and marine industries to help deliver this much-needed research, recognising that red-throated diver displacement has potential to affect a number of different offshore activities.

Recommendation 10: We support the need for a comprehensive review of post-consent monitoring data from offshore wind to inform future environmental impact assessments and identify outstanding gaps. This recommendation links directly to the Offshore Wind Evidence and Knowledge Hub project which we are progressing under the Offshore Wind Evidence and Change programme. Currently at the start up stage, this project is intended to provide a platform for the evidence and learning gathered to date from offshore wind impact assessments, mitigation measures and post-consent monitoring in order to develop guidance for the assessment and management of specific topics in offshore wind EIA. The overall aim is to drive proportionate scoping, so that assessments focus on significant impacts and required mitigation; as such we believe this project is relevant to this SEA recommendation and the wider SEA Programme, Defra's Offshore Wind Enabling Actions Programme 'better data' work stream, as well as Defra's aim to improve EIA scope and process as recently consulted on as part of the Nature Recovery Green Paper. We look forward to working with BEIS and Defra, as co-sponsors of the Offshore Wind Evidence and Change Programme, to ensure appropriate links are made from the knowledge hub work to the wider planning and policy context.

Recommendation 16: We welcome this SEA recommendation regarding injection of carbon dioxide into saline aquifers and appropriate control measures and monitoring. We note that it

aligns with an action identified within the Offshore Wind and CCUS Co-location Forum to consider saline impacts. We welcome further engagement with members of the Forum on this issue and how best to take this OESEA4 recommendation forward.

Recommendation 17: We welcome this recommendation on tidal range and the need for site specific assessment and consideration of local, regional and far-field effects. Associated with this, we would strongly encourage early engagement with stakeholders and suggest that this should be incorporated within the wording of the recommendation. We would, however, like to note that at the leasing stage it may not be possible to undertake site-specific assessment due to lack of project details available at that time, and such detailed assessments would be best delivered as part of the individual project pre-consent planning and development activity.

Recommendation 18: We welcome the recognition that at all levels of assessment, guidance on the spectrum of certainty and the point beyond which cumulative effects assessment is considered conjectural would be useful; having a clear 'cut off point' for such assessments will increase certainty for developers and decision makers alike. We note the link between this recommendations and Defra's planned EIA review work, and would recommend that Welsh Government and Natural Resources Wales are also consulted on how this SEA recommendation can best be delivered in practice.

Recommendation 19: We welcome this recommendation focused on finding a consenting route for hydrogen, as this is a key requisite to being able to unlock the opportunities for this sector and the contribution low carbon hydrogen could make to UK energy security and Net Zero targets.

Recommendation 26: We strongly support the need for an up to date understanding of the conservation status of Marine Protected Areas, in order to reduce uncertainty and precaution in assessments and decision making. Such an understanding is also a pre-requisite to being able to more accurately identify suitable offsetting measures where required, additionality, and, where relevant, opportunities for Marine Net Gain. We therefore recognise the importance of this recommendation in driving forward work on delivering strategic compensation and better understanding opportunities for marine environmental enhancement, e.g. via identification of strategic priorities for Marine Net Gain. The Crown Estate is committed to protecting and enhancing biodiversity and promoting nature recovery across all areas of our business and would welcome a strategic approach to better understand our marine designations.

Recommendation 27: We welcome the recognition that appropriately focussed surveys of animal activity and behaviour should be undertaken to inform commercial scale wave and tidal stream deployment risk assessments and consenting. Addressing key evidence gaps such as mobile species interactions will be key to adaptive management and allowing further deployment of these sectors at scale, and accordingly The Crown Estate is currently supporting the Environmental Monitoring and Mitigation Plan (EMMP) at the Morlais tidal stream demonstration zone off Anglesey. More widely, we are working to take a more proactive approach in this space, and are engaging with other developers and the sector as a whole on enabling actions that could

be taken on data and improving the evidence base in order to unlock further potential for these technologies. We support the recommendation that research results should be made publicly available wherever possible, and we will be working closely with our customers to ensure that pre- and post-installation data is published via the MDE in order to maximise value for the wider marine renewable energy sector.

Recommendation 29: We welcome the reference to the MDE, and as noted above would like to highlight its position as a world-leading platform for drawing together marine industry survey data, research and evidence. We support the recommendation that data contained on the MDE and other relevant databases should continue to be made available for use in future assessments and consenting processes, aligned with our support for the recommendation on the need for a review of offshore wind post-consent monitoring data. Reference is made in this recommendation to the Marine Environmental Data and Information Network (MEDIN); for clarity, The Crown Estate is a sponsor of MEDIN and we work with our customers to ensure such data standards are met during all phases of data acquisition and dissemination.

Recommendations 31 and 34: We welcome these recommendations relating to HRA compensatory measures. It should be noted however that in line with the mitigation hierarchy, utilising the HRA derogation route should be viewed as a last resort and we would like to emphasise the need to maintain momentum on a wider programme of work to improve the evidence base and reduce uncertainty in assessments, and drive innovation in technology and mitigation. However, in relation to benthic habitats, we support the need for review and further research on appropriate benthic compensatory measures, and consistent data collection and dissemination on the nature, scale and location of hard substrate deposition in order to better understand the current scale of impacts and opportunities for offsetting. We also welcome the suggestion that when considering potential compensatory measures for seabirds, measures that can be delivered through management of other activities should be explored. As noted above, we are currently actively engaged in discussion with Defra, BEIS, the offshore wind industry and stakeholders on the need for a more strategic approach to delivery of compensatory measures, and a core element of this will be increasing the evidence base and shared understanding of what compensatory measures are ecologically viable (and so maintaining close links to programmes of work aimed at addressing evidence gaps), as well as how best they can be secured. It is likely that due to their strategic nature, many of the measures will require policy interventions and/or be delivered by Government, and therefore we welcome the opportunity to engage further with BEIS and other Departments on this subject and ensure appropriate join up between complementary work streams.

Recommendation 35: We note that this recommendation on a programme of strategic investigations for relevant MPAs judged to be in unfavourable conservation status in order to inform consenting advice and decisions, is closely linked to recommendations 26 and 31. We also note the wider relevance to Defra's recent Nature Recovery Green Paper and evolving approach to MPA management, as well as commitments made in the BESS to implement a new Offshore Wind Environmental Improvement Package including an industry-funded Marine Recovery Fund and nature-based design standards to accelerate deployment whilst enhancing the marine

environment. We look forward to continuing to work closely with BEIS and Defra on delivering against these commitments, whilst ensuring close links to the evolving evidence base as captured by e.g. the Offshore Wind Environmental Evidence Register, ongoing work delivered under the Offshore Evidence and Change Programme, and improving understanding of the nature and scale of hard substrate deposition.

Recommendation 38: We are supportive of the move towards Marine Net Gain and are aware that both industry and stakeholders alike are keen to see work in this area progress. One of the themes of the Offshore Wind Evidence and Change programme is around investigating environmental benefits, and a project was recently commissioned to look at strategic net gain targets for coastal and marine environments. It is our view that for any net gain in the marine (and coastal) environment to be meaningful, it must be delivered strategically and at scale. However, we recognise that there may be small scale benefits associated with offshore energy installations which could contribute to biodiversity in the marine environment. We note that in line with commitments made to establishing nature-based design standards in the BESS, the Pathways to Growth Coordination Group is currently progressing a feasibility/scoping project on nature positive designs at offshore wind farms. As a member of the P2G Coordination Group, we will look for opportunities for collaboration on this theme with the Offshore Wind Evidence and Change programme and we would recommend appropriate links are also made to any follow up action relating to this SEA recommendation in order to avoid any duplication of effort.

6 Conclusion

We hope that our comments are constructive and will be useful in informing BEIS's decision on the adoption of the plan/programme under consideration. We look forward to continued engagement with the SEA process through our role as member of the SEA Steering Group and we are very willing to provide additional information on any of the points we have raised above. All of this response may be made available in the public domain and there is no part of it that should be treated as confidential.

Contact:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

From: [REDACTED]
Sent: 27 May 2022 11:56
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: OESEA4 Environmental Report Published Today

Good afternoon [REDACTED]

Hope you are well. Please see below our comments for the OESEA4 report:

- It would be beneficial for BEIS to set out in their response whether there's an intention to revise OESEA4 or begin work towards OESEA5 given the new commitments in the BESS that involve expansion of offshore wind, oil/gas and nuclear developments.
- It's disappointing that only 2019 VMS fisheries data was used to make an assessment of important fishing grounds, as this will miss any yearly variations and doesn't include inshore vessels, though they recognise the absence of the inshore data in the text. This means that the identification of the important fishing grounds could miss yearly variations.
- We support the analysis of the current situation regarding co-location of OW and fishing but think it would be useful for the SEA to make stronger recommendations on how to address these.
- Recommendation 4 of the spatial recommendations (p. 632) which states that 'developments should aim to avoid recognised important fishing grounds unless there is an agreement that successful co-location between industries is achieved', is welcomed. However, it is not clear how they suggest that this should be achieved. The SEA would benefit from making stronger suggestions e.g. updated guidance, or recommendations to fill evidence gaps, to ensure that its recommendations are implemented.
- In terms of the monitoring/evidence, we are pleased to see that BEIS have taken strong stances within the recommendations of this review based on the evidence, e.g. not allowing further development in areas where red-throated diver are until further evidence is available. The report emphasised the importance of strategic review of post-consent wind farm monitoring in order to inform the environmental assessment, consenting of future developments and identification of important evidence gaps which is something the Better Data team had previously highlighted.
- It was welcoming to see that within the recommendations BEIS are thinking about how this information is archived, standardised and disseminated across things like MEDIN & MDE in order to ensure the data is available for future use.
- Section 5.3.2.1 – There is a typo on the second paragraph – it states monopole foundations and should stay monopile.
- Table 5.2 (p. 140) will need units added to the table.
- Section 5.3.4 – There doesn't seem to be a mention or reference to the guidance on noise management in harbour porpoise SACs and would recommend adding it in. Link: [Guidance on noise management in harbour porpoise SACs | JNCC Resource Hub](#)

Many thanks,

[REDACTED]
Cross Programme Support Officer
Offshore Wind Enabling Actions Programme (OWEAP)
Marine and Fisheries | Department for Environment, Food and Rural Affairs

My working hours are 8am – 4pm Monday-Friday.

For general enquiries please contact offshorewind@defra.gov.uk



**Department for Business Energy and Industrial Strategy
Offshore Energy Strategic Environmental Assessment (OESEA4)**

**Consultation response from the Marine Management
Organisation (MMO)**

26/05/2023

Thank you for consulting the Marine Management Organisation on the offshore energy strategic environmental assessment 4. We found the documentation to be a highly informative resource and represents a comprehensive review of the of the issues that need to be addressed to support sustainable growth of offshore energy resources. Energy policy and strategies are developing and evolving at pace at the moment however and we would like to know how the SEA will take account of this and whether there will be a need for revisions or extensions.

The SEA has been reviewed by representatives from the varying functions across the organisation. We are largely supportive of the content, but we have provided the following comments which we feel would further improve the outputs of the SEA.

Summary section

1. Page 30 in the assessment summary states: *“The report recommends the adoption of mitigation measures such as reducing noise emissions through modifications to offshore wind installation methods recommendations which are accepted by this SEA through the review of this and other sources of information.”*

MMO Comment: Should this be interpreted as a recommendation that all OWF piling operations produced under this plan should be employing measures to reduce noise e.g. through the use of sound abatement technology and if not then justifying why? The use of such measures to reduce piling noise would dramatically facilitate our ability to manage offshore construction especially in a future with increased construction and potentially increased seismic activity (associated with CO2 storage and other activities). It would also reduce impacts to a wide range of species.

5.15 Overall spatial consideration

Other plans related to those outlined in this SEA have undertaken similar exercises mapping and analysing the spatial constraints and opportunities for offshore energy development, for example The Crown Estates round 4 offshore wind assessment. We would like to emphasise the benefits in ensuring the data and analyses in all related plans continue to be complimentary and share similar approaches.



Recommendations Section

2. Section 6.3 .9 States *“It is recommended that until further information is available on the scale of habitat degradation/loss across operational wind farms in areas designated for red-throated diver, and it is understood how this loss translates into population level effects for the species, future rounds of offshore leasing should avoid impinging on diver habitat, noting that boundaries for sites designated for this feature may not always reflect where diver habitat is located”*.

MMO Comment: What is a Red Throated Diver Habitat? These birds feed on a range of fish species found at different depths and over differing substrate types, how are developers to identify these non- designated Red Throated Diver habitats, would it be driven by areas where significant numbers of divers are regularly observed? Is there a reference data resource for this species distribution information?

3. Section 6.3 .10: The MMO is working with Defra to undertake an updated review of post consent monitoring at offshore wind farms the outputs of which will make recommendations for future work. Note: This work was planned for 2022 but has been delayed with an unspecified restart date.

4. Section 6.3 .11: Projects under the NERC ECOWind programme are actioning this recommendation by proposing to specifically study and model the wide ranging ecological effects created by large scale hydrodynamic changes induced by offshore windfarms. It should be noted however that Ecowind are yet to announce which 3 projects from the 7 proposed are successful in gaining funding so the extent to which they will support this objective is currently uncertain

5. Section 6.4 .26 States *“An up to date understanding of the conservation status of these sites and their features is important”*

MMO Comment: We would go further and say that not only should we have a more comprehensive understanding of the condition of our sites we should have a far more advanced understanding of the conservation status of protected habitats and species in our seas. Specifically where are the ecological gaps and shortages in the MPA network and in addition where do we feel coverage/functionality is acceptable. Without this information our ability to assess the cumulative effect of energy plans and our ability to provide the right type of compensation is significantly impaired. Furthermore this information would support proposals for marine net gain.

Physical damage/change to features and habitats

6. Section 6.5 sec 30 states *“developers must ensure that realistic levels of impacts (from cable installation and protection) and where possible impact location, particularly those associated with cable installation and protection in sensitive MPAs, are assessed as part of their submissions at the consenting stage”*

MMO Comment: Much more work is required here to understand what ecological effects the widespread deployment of rock/concrete-based scour protection has on sedimentary



habitats at large scales i.e. whole MPA or regional levels. The localised effects of individual rock/scour protection programmes are often relatively small as the area of the rock deposited is usually only a very small proportion of the MPA or habitat type in a region. However, the effects become significant when consideration is given to the cumulative amount of seabed already covered by scour/rock protection as a result of previously consented activities e.g. other oil and gas and renewable developments. It is often beyond the scope of individual applications/operators to undertake the large scale modelling or ecological assessment that is required to underpin a cumulative assessment of this kind. As a result, assessment and licensing of individual scour protection works (especially in MPAs) is challenging and has a high level of uncertainty. An assessment of the regional widespread ecological impact of rock protection should be done at a strategic scale and this strategic assessment would then underpin decisions made on project/licence specific scale. We feel the SEA could do more to support this decision making.

7. Section 5.16.4: If we are to manage the impacts of rock protection and fully assess the complex ecosystem interactions of wide scale deployment of rock and hard substrate protection we need to know exactly where it has been placed in the past and what area of the seabed has been covered. The SEA should recommend the creation of a baseline spatial database of what rock/hard substrate protection is on the seabed. All future cumulative assessments on the use of rock protection would use this resource as their common basis.

Alternatives

8. There are a number of offshore energy construction techniques which are commonly used which often cause impacts, some of which cause adverse impacts to protected sites and marine life, for example the rock protection used to manage scour and physical damage to cables and infrastructure. The SEA should look to examine and support alternative approaches, for example what options are available to protect against scour and damage which do not require large amounts of rock dump. Regulators are not normally technically qualified to make recommendations as to whether an alternative technology, installation or protection technique should or should not be used. It would therefore be beneficial to have independent recommendations as to what alternative options we should expect operators to consider and when such measures would be appropriate.

Fisheries (3.7.2.2)

9. Page 346 States *“Potential spatial impacts... include, for example, displacement from fishing grounds during the construction and decommissioning phases”*

MMO Comment: Depending on the type of fishing activity and the layout of the windfarm, displacement can also be an issue during the operational phase. This impact can be minimised through early and consistent engagement with the fishing industry.

10. Page 348 states *“Proposed mitigation for fisheries - The use of concrete mattresses to protect cables rather than rock dumping”*

MMO comment: Concrete mattressing is not always preferable from a fishing perspective. Depending on the gear type used, rock berms can be easier to work over. In some situations other forms of cable protection could be preferential e.g. the use of frond mats. We



recommend that developers consult with local fishers to understand their preferred method of cable protection.

11. Page 348 states “*Mitigation measures related to financial support for existing fisheries, and the development of new fishing/non-fishing opportunities*”

Some of the proposed funds may be effective mitigation for the fishing industry, is there any view on whether government should have a role in establishing these? Similarly, is there a role for government in supporting or enabling the measures discussed under ‘developing new fisheries or non-fishing opportunities’?

12. Fisheries mitigation measures pages 347 and 35: The mitigation measures discussed here come from a report published in 2010. There has been a lot of work on OWF fisheries co-existence in the meantime – we recommend that the SEA team works with the Defra OWEAP Fisheries Co-existence team to understand the latest thinking and evidence.

13. Page 632 States “Developments should aim to avoid occupying recognised important fishing grounds”.

MMO Comment: What is the criteria for an important fishing ground?

14. A2.39 States “*The nature of the future management of fisheries in UK waters is likely to reflect the proposals set out in the White Paper, Sustainable Fisheries for Future Generations*”

MMO Comment: Why is there no mention of the Fisheries Act here? We recommend that the SEA team works with Defra to understand how the plan for offshore energy interacts with future fisheries management.

Managing environmental risk (6.3)

15. As offshore energy technology develops and as new project designs are proposed there will be increasing uncertainty regarding the nature of the environment impacts from the energy projects. Other countries have developed bespoke testing sites where new technologies and techniques can be tested, examined and their environmental impacts better understood before full scale deployment. Such an approach in the UK would be useful and could support more efficient development of the varying sectors and could be a useful additional recommendation from the SEA.

General Comments

Marine Plans

16. Marine plans are prepared under the policy framework provided by the UK Marine Policy Statement; together they underpin the marine planning system for England. The UK Marine Policy Statement builds on the shared UK-wide high level marine objectives and provides an overview of the relevant national policy, including the National Planning Policy Framework and associated National Policy Statements.



Implementation of marine plan policies, through more informed decision-making, will help to ensure that the management of different and potentially competing activities contributes to the achievement of sustainable development and optimal use of the marine areas' natural capital. Policies encourage enhancement and provide protection for vulnerable habitats and species, maintenance of natural defences against climate change and flooding, and will improve the well-being of coastal communities and support a strong marine economy.

Importantly we would like to flag that marine plans represent a powerful platform which can be used to find space for offshore energy development and give effect to the government's policies, targets and objectives covered in the SEA.

The OESEA4 makes frequent and relevant references to marine plans including specific marine plan policies and in doing this the SEA demonstrates a valuable and useful example of how marine plans can support decision making.



Offshore Energy SEA 4 - Environmental Report

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

26 May 2022

Our ref: UK 000051 – UK Offshore
Energy

[REDACTED]

Dear Sir / Madam

OESEA4 – ENVIRONMENTAL REPORT – CONSULTATION RESPONSE
FUTURE LEASING / LICENCING FOR OFFSHORE RENEWABLE ENERGY, OFFSHORE OIL & GAS AND
GAS STORAGE AND ASSOCIATED INFRASTRUCTURE

Thank you for consulting NatureScot (the operating name of Scottish Natural Heritage) on the above report. We provide both general comments on the structure as well as more detailed comments on the conclusions and recommendations below.

General Comments and Response to Proposals

NatureScot is the statutory adviser on nature to Government with our stated aim to protect and restore nature and to inspire everyone to value our natural world. Our recently published corporate plan – A Nature-rich Future for All – 2022- 2026¹, indicates the steps required for Scotland to tackle the climate emergency and the nature crisis. In addition, recent world events have shone a spotlight on energy security requirements across Europe and beyond. However, we are in a climate-nature crisis because we are burning fossil fuels as well as how we manage our land and sea.

The British Energy Security Strategy (BESS) published in April², soon after this OESEA 4 Environmental Report publication, has changed the ambitions / urgency around renewables

¹ <https://www.nature.scot/sites/default/files/2022-04/Corporate%20Plan%202022-2026%20-%20A%20nature-rich%20future%20for%20all.pdf>

² <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>

targets and raised new issues around our exploitation of fossil fuels. The comments below relate to those activities of this Plan that are not devolved to Scottish Government and planned in Scottish waters:

- Oil and Gas Exploration and production
- Hydrocarbon gas importation and storage
- Carbon Dioxide transportation and storage (CCS in Scottish territorial waters is a devolved matter)
- Hydrogen production and transportation offshore

We also note that renewable energy (offshore wind, wave, tidal stream and tidal range) – are planned for other areas of UK waters. We wish to recognise the research programme undertaken by the SEA research group, which provides evidence / knowledge that is of wide applicability, aids our understanding for energy proposals in Scottish waters, and is very much welcomed.

We are unclear if a review of the OESEA4 will take account of BESS and the revised targets and ambition set out in this strategy. This strategy has implications across the UK; it would therefore be helpful to understand what if any adjustments will be made to the OESEA4.

NatureScot recommends the reduction and future cessation in the exploitation of fossil fuels in order to mitigate the effects of climate change. Atmospheric emissions from further future potential activities, will contribute to local, regional and global concentration of carbon dioxide and other greenhouse gases. However, we also recognise the short-term issues around energy supply and security as well as the need to consider and plan for the just transition of jobs dependent on the hydrocarbon industries.

Consideration of Alternatives

We have reviewed the alternatives considered as part of the plan:

1. Do not proceed with further licencing and / or leasing for one or more aspects of the draft plan / programme
2. Proceed with further licencing or leasing
3. Proceed with further licencing or leasing, but restrict these spatially or temporally

We welcome that since OESEA3, this assessment of alternatives is further split, to enable individual consideration for each sector separately– this enables greater clarity and transparency around the assessment process and conclusion(s) reached. We support the overall conclusions that OESEA4 should follow the third alternative- to proceed with licencing / leasing, but for restrictions to apply.

OESEA 4 – Environmental Report and Supporting Appendices

We recognise considerable work goes into the OESEA process including preparation and presentation of the report and accompanying appendices. There is considerable information within each appendix (approximately 100 pages each) as well as the Environmental Report being over 700 pages. We recommend consideration on the future presentation and format of this work, to help readers to quickly identify the conclusions reached with any spatial or temporal

restrictions. This could include the updates or changes to the evidence base, legislation and policy drivers that have occurred since the previous round and how to identify what the OESEA is intending to cover during the current cycle. We would be happy to discuss this further, particularly, the potential to further develop the presentation of issues in each of the regional seas and / or whether digital presentation formats could be an option for further rounds. This may also help in the consideration of other spatial plans or policies, the increasing competing use of our seas and the consideration of cumulative effects.

Consideration of Significant Effects

We note the following aspects identified as potentially having significant effects:

- Oil and gas, gas and carbon dioxide storage – particularly development of large reserves and associated ancillary development including pipelines, tanker offloading and any quayside facilities. The increasing likelihood of hydrogen production and storage and transportation will require consideration.
- Grid system – the ongoing offshore transmission network review and the holistic network design is due to be published shortly. This will have a major bearing in coordinating grid design for new and current offshore wind proposals across the UK.
- Ports and manufacturing facilities - anticipated changes to ports and harbours in Scottish waters are devolved and will be dealt with through Scottish regulatory systems.
- Cumulative impact considerations – whilst mentioned, it is difficult at this stage to provide any detailed assessment of likely cumulative effects, thus making the plan conclusions open to further assessment requirements at project specific application stage.

Recommendations and Monitoring

- The conclusion reached is that the plan / programme should be based on alternative 3 i.e. to restrict activity spatially and / or temporally. In terms of spatial restrictions, we are supportive of this approach.

We support the following specific recommendations:

- We support that the area to the west of the Hebrides will be withheld from oil and gas licencing.
- We are supportive that any future leasing and related projects for oil and gas meet as a minimum the North Sea transition deal on upstream emissions.
- We support the recommendation to look at opportunities to enhance mitigation measures for beaked whales where anthropogenic noise is introduced into the environment.
- We support the need for clarification on the consenting routes for projects transporting hydrogen by offshore pipeline and / or its storage in geological formations. In addition, there are a number of emerging technologies for which there is no consideration in existing consenting routes and this should be taken forward as a matter of urgency, including hydrogen production, decarbonisation of oil and gas platforms etc.

- We consider that detailed baseline data in areas where development may occur should be collected at the earliest stage as possible – potentially for plan making. This will help inform site selection and the likelihood of potential impacts – this would be most informative for all mobile species, including marine birds and mammals (particularly for those species we have least data and understanding of), as well as for Priority Marine Features and Annex 1 habitats.
- We would also support further enhanced understanding of benthic features and habitats, particularly where possible their modelled distribution to help inform site selection, management measures, including mitigation and compensation.
- We support further strategic studies into the effects of EMF, in particular in field studies on a variety of cables and strengths around differing locations in UK waters.
- In addition to the recommendations to understand the status of conservation sites, we also recommend that resources are made available for the monitoring of features on a regular basis to help increase our understanding of any trends across features and locations e.g. seabird census, MPA monitoring etc.
- We recommend an additional aspect for consideration and that is the development and ground-truthing of innovative monitoring technologies such as eDNA, tags for species etc. as well as discussion around nature inclusive design.
- Lastly, the collection of data during the EIA / HRA process from baseline surveys to post consent monitoring is invaluable. However, we ask that this is made available publically in a timeous fashion, to agreed standards and databases and that where possible collaboration across spatial and temporal data collection surveys is actively encouraged.

Best practice / mitigation

- We welcome the recommendation that volumes of rock for cable armouring should be minimised and that alternative method of protection / control is considered, specifically to help with nature inclusive design, but also to consider in terms of the ease of removal at decommissioning.
- We support the further consideration of strategic compensation delivery at a policy level including the specific mention of sand eel fisheries closure.
- We would welcome the adherence to an internationally recognised standard, by all developers of an Environmental Management System.
- We support the approach for low noise methods for UXO disposal and advise there is a position statement from both Regulators and advisers on this topic.³

SEA Objectives and Monitoring

Finally, we support that monitoring will occur to identify that the SEA objectives are being met. As part of this process, we welcome that the advice provided by the Climate Change Committee to Government will continue to be reviewed against the objectives of the OESEA 4.

³ <https://www.gov.uk/government/publications/marine-environment-unexploded-ordnance-clearance-joint-interim-position-statement>

Should you wish any clarification on the points raised, please do not hesitate to contact me by

[Redacted]

Yours faithfully,

[Redacted]

Marine Sustainability Manager, Sustainable Coasts and Seas

NatureScot

[Redacted]

[Redacted]

[Redacted]

[Redacted]
[Redacted]

[Redacted] [nature.scot](https://www.nature.scot)

NatureScot is the operating name of Scottish Natural Heritage

23 May 2022

BEIS
By email only

Dear Sir/Madam,

Subject: Offshore Energy Strategic Environmental Assessment: Environmental Report

The South Downs National Park Authority (SDNPA) welcomes this opportunity to comment on the Environmental Report. Our comments are focused on the section regarding Regional Sea 3 and matters that could impact on the Purposes and Duty of the South Downs National Park. We have also taken the opportunity to make some general comments on the Report.

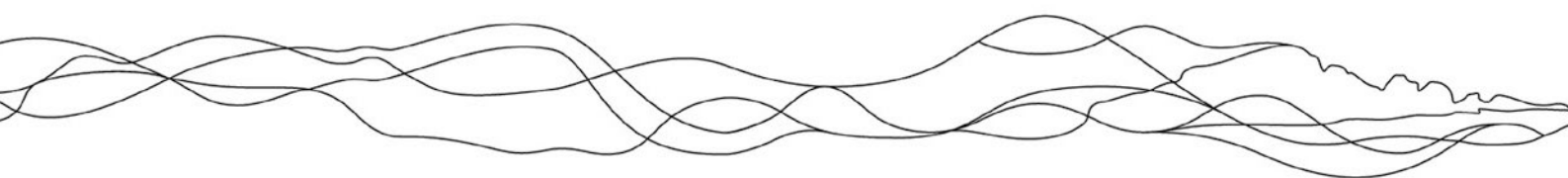
The SDNPA recognises the need to mitigate and adapt to climate change and for this to be undertaken at both a strategic and local scale. This also needs to be considered against the backdrop of areas of extremely sensitive coastline and the landscape/seascape impact. We would advise including the National Parks England Position Statement on [Climate Change](#) (2019). Whilst it is noted that the National Character Areas of England is included on p52, we would welcome the inclusion of the landscape character assessments for those protected landscapes that include a coastline, or views to sea (e.g. South Downs National Park) more explicitly.

We were also concerned that there is little consideration of the in-combination impact of the onshore elements associated with many of the offshore energy proposals. The previous Scoping Document noted that on-shore parts of the pipeline are subject to the terrestrial planning regime and not part of the SEA, however they are typically considered together as part of the Development Consent Order examination process. The ongoing lack of an overarching plan for onshore infrastructure, particularly how and where it connects to the National Grid is likely to have a significant effect on the evolution of offshore energy and the likelihood of delivery. The SDNPA would recommend reviewing the separation of these elements, and would welcome the inclusion of consideration of the impacts/effect of onshore infrastructure.

At paragraph 4.4.10.1, we welcome the mention of National Parks as a protected area, although we would like it to be clearer from this early stage of the document that they are given the highest status of protection in legislation and regulation. It is not simply the case that 'attention should be brought to them', as is currently suggested.

We were pleased that the Report acknowledged the importance of unspoilt and natural scenery, and that this was often a determining factor for people visiting National Parks on the coast, or with access to seascapes. More specifically, we welcome the reference on p443, which identifies the "stunning, panoramic views to the sea" as being a key characteristic of the SDNP and part of its Special Qualities.

We would like there to be clearer links drawn between the SDNP and Heritage Coast, which for a significant portion, overlaps with the SDNP boundary. As the Report identifies, these multiple designations increase the sensitivity of the area. We would also note that although not sharing a coastal boundary, given the higher ground of the SDNP, there remains high levels of sensitivity and inter-visibility between the South Downs and the Regional Sea 3, which would form part of any Seascape Landscape and Visual Impact Assessment. To this end, there is also intervisibility between

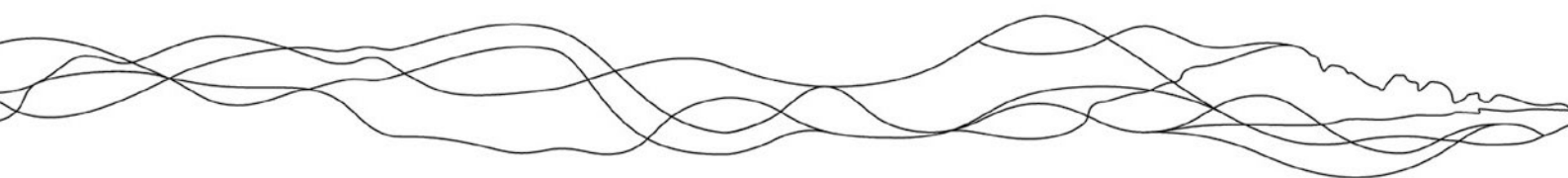


the SDNP, Chichester Harbour Area of Outstanding Natural Beauty (AONB) and the Isle of Wight AONB.

Despite the significant weight and high sensitivity associated with the National Park, and identified within the Report, at page 586 the recommendations appear to downplay the potential for landscape/seascape impact. This appears to be due to a comparison of the western end of Regional Sea 3, and the eastern end. We do not agree that there would be a 'lower level of intrusion' as indicated. We also believe that in terms of the SDNP, there would be a high magnitude for effect as a result of the presence of the National Park and Heritage Coast. These recommendations should not be generalized on the basis of 'east' and 'west' and we advise that if creating sub-areas of Regional Sea 3, the impact on designated landscapes should be separated from the impact on non-designated landscapes and the objective strengthened to reflect their sensitivity and recognise the reason for designation. The setting of designated landscapes should be assessed alongside that of heritage assets, but it should be recognised that they are separate in the first instance and their cumulative impact then considered.

Please let me know if you have any queries about any of the points raised.

Yours faithfully,

A large black rectangular redaction box covering the signature area on the left side of the page.A large black rectangular redaction box covering the signature area on the right side of the page.

Strategic Environmental Assessment Team
DAERA - NIEA

Offshore Energy SEA 4 ER
Consultation

26th May 2022

Re: Consultation on Offshore Energy Strategic Environmental Assessment (OESEA4) - Environmental Report

Dear Sir/Madam,

Thank you for the opportunity to make comments on Offshore Energy Strategic Environmental Assessment (OESEA4) - Environmental Report. The Department of Agriculture, Environment and Rural Affairs Northern Ireland (DAERA) and (supported with a service level agreement) DfC Historic Environment Division (HED), has considered the consultation and associated documents and our opinions are set out below.

Natural Environment Division (NED) Comments

DAERA SEA Team is content that the environmental report and the process of consultation follow the SEA Directive.

A description of the current state of the environment and the likely evolution of the baseline conditions is included within the environmental report. Appropriate environmental objectives / targets / indicators for each of the likely environmental receptors is addressed including consideration of alternatives, an assessment of significant impact and complemented with mitigation measures and monitoring programmes.

NED welcomes that alternative 3 is the draft plan/programme's preferred option and that the SEA 'recognised that there are areas that should not be leased or licensed at this time due to a high level of uncertainty, or that the areas are considered inappropriate for development'. NED is in agreement with the



conclusion of the SEA - that the area offered for licensing/leasing should be restricted spatially through the exclusion of certain areas together with the use of mitigation measures to prevent, reduce, and offset significant adverse impacts on marine habitats and species and the wider environment.

We agree that site-specific assessments should be undertaken before decisions can be taken on potential licensing/leasing of individual projects. This should include appropriate surveys of the behaviour and activity of marine and bird species – particularly European Protected Species.

The environmental report has acknowledged that the majority of operations associated with the development and operation of offshore oil & gas, offshore wind, wave and tidal installations and for the storage of gases are subject to the requirements of environmental regulations including the requirements of Environmental Impact Assessment and Habitats Regulation Assessments.

The environmental report has highlighted that marine mammals show the highest sensitivity to underwater noise, particularly the intense pulses associated with seismic surveys, impact pile-driving and the use of explosives.

DAERA is content that the SEA has considered the protection required for European Marine Species under the Habitats Directive and has had regard to the JNCC guidance on mitigation measures.

Marine and Fisheries Division Comments

The Marine Plan Team (MPT) DAERA – Marine & Fisheries Division welcome the opportunity to comment on the BEIS SEA 4 Environmental Report (ER) for the Offshore Energy SEA programme.

It is noted that the main objectives of the draft programme are to enhance the UK economy, contribute to the achievement of carbon emission reductions and security of energy supply, but without compromising biodiversity and ecosystem function, the interests of nature and heritage conservation, human health, or material assets and other users.

In addition, the MPT understand the purpose of this SEA process is to help inform offshore energy licensing and leasing decisions by considering the environmental implications of a proposed plan/programme and the potential activities which could result from its adoption. In addition, the ER will consider the implications of alternatives to the plan/programme and consider the potential



interactions with other users of the sea and inform the UK Government's decisions on the draft plan/programme.

We note the geographical limits of the programme with regards to renewable energy – generated from offshore wind, wave; tidal stream and range; and that the territorial sea limit of Northern Ireland, and the above specific renewable energy activities are not included in this part of the programme.

We also note that oil & gas (covering exploration and production and hydrocarbon gas importation and storage); carbon dioxide (covering carbon dioxide (CO₂) transportation and storage); and hydrogen (offshore production and transport) within NI marine waters is included within the remit of the Offshore Energy SEA 4 programme.

The MPT acknowledge the comprehensive nature of the ER and its supporting suite of appendices which provide an in-depth consideration of all the relevant and pertinent issues.

Having reviewed the ER and the associated appendices, the MPT provides the following comments to assist with the progression of the Offshore Energy SEA 4 programme.

The draft Marine Plan for Northern Ireland contains a single energy policy supporting all energy proposals (i.e. renewables and oil & gas) which improve the security and diversity of energy supply, provided that they do not unacceptably impact other activities or the offshore environment, and that restoration/decommissioning measures have, where necessary, been agreed. The draft plan does not include a specific CCUS or gas storage policy.

The MP Team would suggest that the last sentence is amended as follows:
The draft plan does not include a specific CCUS or gas storage policy, however a second iteration of the draft Marine Plan for Northern Ireland is due for early 2023 for which clarifications on both CCUS and gas storage are being considered.

ER Report:

Page 22

The MPT would point out that Lough Neagh (the largest freshwater lake in NI, the island of Ireland and the UK) has been accidentally shaded to suggest it is part of the inshore and offshore waters comprising the Marine Plan for NI. This shading should be removed in future versions of the ER document.

Marine and Fisheries Division (M&FD) notes that the Environmental Report states that *'Northern Irish waters within the 12 nautical mile territorial sea limit are not covered by renewable energy aspects of the plan'*, in addition that for Hydrogen production offshore the territorial waters of Northern Ireland are not included in this SEA therefore, M&FD have not focused on the renewable energy and hydrogen production aspects of the environmental report. However, M&FD notes that in several places throughout the Environmental Report reference is made to Rathlin Island and Torr Head (Northern Ireland) in relation to the renewable energy source of tidal stream therefore, potential sedimentation changes created by the tidal stream renewable energy will need to be considered in line with changes in coastal processes. In addition, M&FD welcomes the fact that the SeaGen Tidal Turbine in Strangford Lough, is being referred to as a test case to inform future turbines.

M&FD welcomes the following points:

- That alternative 3 is the draft plan/programme's preferred option and that the SEA *'recognised that there are areas that should not be leased or licensed at this time due to a high level of uncertainty, or that the areas are considered inappropriate for development'*.
- The fact that the Environmental Report discusses the cumulative effects of potential impacts as well as existing human activities such as fishing and shipping and investigates the interrelationships between the different activities.
- The fact that there will be Environmental Impact Assessments for all future development relevant to this SEA.
- The encouragement of using alternative 'low-order' approaches (e.g. deflagration) which render the unexploded ordnance safe without causing it to explode, in order to mitigate for underwater noise while clearing unexploded ordnances.
- How the SEA displays awareness of existing problems related to benthos habitats so that potential activities do not exacerbate the problem. For example, the suggestion of reducing trawling activities in areas where energy activities are due to take place (Section 4.4.7 Damage to seabed habitats).



- How the impacts of climate change on marine habitats and species has been investigated in conjunction with how offshore energy activities will impact marine habitats and species. In addition to the use of modelling to predict changes in species distribution, in order to assess potential impacts (Section 4.5).
- The fact the injury thresholds for marine mammals are precautionary and that an indicator for noise has been created to address the cumulative impact of impulsive sound generating activities (Section 5.3)
- Points 30 and 31 in Section 6.5 Best practice/mitigation

M&FD welcomes the inclusion of the following policies/legislation listed in the main Environmental report and Appendix 2:

- Marine and Coastal Access Act 2009 (with reference to Marine Conservation Zones)
- The Marine Strategy Regulations 2010
- Marine Policy Statement (2011)
- The draft Marine Plan for Northern Ireland (consultation 2018)
- Wildlife and Natural Environment Act (Northern Ireland) 2011
- Wildlife (Northern Ireland) Order 1985
- Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995
- Marine Act (Northern Ireland) 2013
- Strategic Planning Policy Statement For Northern Ireland (2015)
- Strategy for Marine Protected Areas in the Northern Ireland inshore region (2014)
- An Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026 (2006)
- Marine Conservation Zone project Planning Policy Statement 15: Planning and Flood Risk (2014)
- Northern Ireland Regional Seascape Character Assessment (2014)

M&FD welcomes the inclusion of the following potential environmental effects in the main Environmental Report and associated appendices:

- Damages/Changes in habitats via sedimentation/contamination (via oil pollution or dredging)
- Physical damage/loss of biotopes



- Behavioural and physiological effects on marine mammals and fish from noise (e.g. seismic or other geophysical surveys, construction, operation and decommissioning phase noise)
- Introduction and spread of invasive non-native species
- Behavioural disturbance to fish and marine mammals etc. from physical presence of infrastructure and support activities
- Collision risks to water column megafauna (e.g. fish, marine mammals)
- Barriers to movement of fish and marine mammals
- Effects on prey species (therefore we welcome the fact the impacts are being looked at on a whole ecosystem scale)
- Electromagnetic Field (EMF) effects on electro-sensitive species
- Changes in seawater or estuarine salinity, turbidity and temperature from discharges (such as aquifer water and halite dissolution) and impoundment
- Impacts on seascape
- Impacts on coastal, estuarine and sedimentation processes
- Impacts on coastal flood risks
- Impacts to blue carbon habitats
- Impacts of marine litter

Recommendations

- Further research on the following: Assessment summary section: *‘Increased anthropogenic activities in the marine environment, including all of those under consideration in this SEA, will contribute to the continued increase in ambient noise levels. Chronic exposure to increased levels of underwater sound has the potential to have long-term consequences for the health of marine species. An ambient noise indicator has been established in the Marine Strategy, however, information is still lacking as to what levels of ambient noise result in a population level effect (for all noise sensitive species).’*
- The following statement, from the assessment summary section, can also apply to other prey eating species such as top trophic fish, elasmobranchs and marine mammals etc.: *‘There is also the issue of changing baselines and how this effect is dealt with in determining risk, for example, climate change and prey distribution pattern impacts on bird population sizes and distribution.’*
- Red Bay SAC is spelt incorrectly on Page 91.
- On page 206 it states *‘The impact of oil and gas installations on the seabed are considered minor on a regional scale in comparison to fishing activities.’* However, it should be recognised that this is dependent on the habitat which is being impacted and that the impact needs to be looked at in addition to



fishing pressures not in comparison as much of the seabed will have already been affected by fishing activities.

- In Section 4.2.1 M&FD recommends including marine flora such as seagrass (*Zostera sp.*) and seaweeds as they are key components of many marine ecosystems.
- In Section 5 Box 5.1 consider including oil and gas, gas storage and CO² transportation and storage to '*Changes/loss of habitats from major alteration of hydrography or sedimentation (indirect effects on the physical environment)*'.
- M&FD welcomes the inclusion of investigating the effects of the offshore energy's ancillary development in section 5.14 but recommends also looking at how the effects will impact the associated benthic species. This is the same recommendation for section 5.4 which, discusses the impacts of physical damage/change to features and habitats. This is recommended as the associated benthic fauna, which may be sensitive to sediment and turbidity changes, also needs to be considered.
- M&FD welcomes the inclusion of JNCC disturbance guidance, in Section 5.3.4 however, recommends readdressing the following concerns raised in the report:
 - The lack of shut-down of operations if a marine mammal is observed entering the 'mitigation zone' once the seismic survey is underway (as recommended in several countries).
 - The focus on mitigating against risk of injury rather than disturbance.
- Regarding *Appendix 1a4 Fish and shellfish* *Leucoraja batis* has been incorrectly labelled as the Common skate; the common skate is actually two species, the Blue skate (*Dipturus batis*) and the Flapper skate (*Dipturus intermedius*).
- M&FD welcomes the inclusion of Northern Ireland's SACs and SPAs in Appendix 1j however requests the inclusion of the East Coast Marine pSPA.
- Including a table of all Marine conservation Zones and Ramsar Sites in Appendix 1j.

Further information

The inclusion of the following information is recommended for consideration.

For section 4.4.13 Coastal erosion and flooding

Sea Level rise

The recently published evidence report for [CCRA3](#) provides a series of projections of sea level rise for Belfast Northern Ireland. The projections detailed in this report



show that sea level is expected to rise between 0.14 – 0.16m in 2050 and 0.27 – 0.58m in 2080. While the [IPCC report 'Climate Change 2021: The Physical Science Basis'](#) states that global sea levels are projected to increase by 0.28-0.55m by 2100 under SSP1-1.9 (the lowest Green House Gas emissions scenario) or by as much as 0.63 – 1.01m by 2100 under SSP5-8.5 (the highest Green House Gas emissions scenario).

Coastal Forum

Following publication of the Baseline Study and Gap Analysis of Coastal Erosion Risk Management in Northern Ireland the Coastal Forum was reconvened. The Forum includes representation from Government Departments, Local Authorities and the National Trust; it is currently co-chaired by DAERA and DfI Permanent Secretaries. It is intended that the Forum will provide viable policy options for consideration and inform future legislation regarding coastal erosion risk management in Northern Ireland.

- [DFI Flood mapping](#)
- [Baseline Study and Gap Analysis of Coastal Erosion Risk Management NI](#)
- [DAERA Marine Map Viewer](#)

For invasive non-native species

The applicant's attention is drawn to Article 15 of the Wildlife (Northern Ireland) Order 1985 (as amended) under which it is an offence to release or allow to escape into the wild any plant or animal which;

- a) is of a kind which is not ordinarily resident in and is not a regular visitor to Northern Ireland in a wild state (or is a hybrid of any animal of that kind), or
- b) is included in Part I of Schedule 9 (or is a hybrid of any plant or animal included in that Part).

Article 15 of the Wildlife (Northern Ireland) Order 1985:

<https://www.legislation.gov.uk/nisi/1985/171/article/15>

Climate Change Mitigation Branch Comments

Climate Change Mitigation Branch refers The Department for Business, Energy and Industrial Strategy to the recently passed the Climate Change Act (Northern Ireland) 2022.



<http://www.niassembly.gov.uk/assembly-business/legislation/2017-2022-mandate/primary-legislation---bills-2017---2022-mandate/climate-change-bill/>

The Climate Change Committee (CCC) recently published the UK Climate Risk Independent Assessment 2021 which identifies the risk and opportunities posed by climate change over the next five years. A summary for Northern Ireland can be found below.

<https://www.ukclimaterisk.org/independent-assessment-ccra3/national-summaries/>

Please contact the SEA Team at [REDACTED] should you have any queries or require clarification.

Yours faithfully,

[REDACTED]
[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]





Department for
Communities

An Roinn
Pobal

Department for
Commonities

www.communities-ni.gov.uk

Historic Environment Division

[REDACTED]

Date: 12/05/2022

DFC: HISTORIC ENVIRONMENT DIVISION COMMENTS RE: Offshore Energy Strategic Environmental Assessment (OESEA4) - Environmental Report

DfC Historic Environment Division (HED) operate via a Service Level Agreement with colleagues in DAERA in relation to SEA, whereby we provide authoritative comment and advice in relation to matters of Cultural Heritage including archaeological and architectural heritage. We make the following comments in respect of the documentation received by our office on 29/03/2022.

HED welcome the cogisance given to maritime heritage within the context of the environmental report. We welcome the comprehensive appendix i) on maritime cultural heritage concerns and make the following comments which we would request are considered in relation to this section.

Regional Sea Area 6

While not recorded as a recorded loss or on the wreck dataset the earliest recorded vessel from Northern Irish Waters (maritime), noted on the NISMR as MRD 168:152 is a Neolithic logboat dating to the late 4th millennium BC, recovered from the intertidal area in the sea inlet of Strangford Lough. In relation to the table in this section we advise that the Girona is located in Regional Sea 7 (possible typo here).

Regional Sea 7

HED advise that, in addition to the Girona, the WW1 armoured cruiser HMS Drake, located in the waters of Church Bay Rathlin Island is afforded statutory protection as a scheduled monument under the Historic Monuments and Archaeological Objects (NI) Order 1995. NISMR ref ANT 001:118 refers.

We welcome the in-depth discussion which recognizes the maritime interrelationships through the ages, including the prehistoric period, and the potential for discovery information which may enhance our knowledge. We attach a link to Northern Ireland's historic environment digital datasets, which might be utilized during future assessments or at project specific level

to further understand potential for impacts, including those on setting of key coastal and marine assets. [Historic Environment Digital Datasets | Department for Communities \(communities-ni.gov.uk\)](#) and a link to our historic environment map viewer [Historic Environment Map Viewer | Department for Communities \(communities-ni.gov.uk\)](#)

Datasets specific to Northern Ireland's marine historic environment, including around wrecks and reported losses can be obtained through contacting [REDACTED]

Should you wish to contact us to discuss any of the content of our response we can be reached via the email address above.

Yours sincerely

[REDACTED]
Senior Archaeologist

[REDACTED]
Senior Architect

HERITAGE RECORDS AND DESIGNATIONS BRANCH



Historic England

[REDACTED]

27th May 2022

Dear [REDACTED]

UK Offshore Energy Strategic Environmental Assessment 4: Environmental Report

Thank you for your email of 17th March 2022 and the attached document, as referenced:

Future Leasing/Licensing for Offshore Renewable Energy, Offshore Oil & Gas and Gas Storage and Associated Infrastructure. OESEA4 Environmental Report, dated March 2022

We also acknowledge receipt of the data-stick containing the Environmental Report and all associated appendices supplied by post.

In summary, we concur with the conclusions of the Environmental Report as relevant to our role and responsibilities.

As you may be aware, Historic England is the Government's advisor on all aspects of the historic environment in England. Historic England's general powers under section 33 of the National Heritage Act 1983 were extended (via the National Heritage Act 2002) to modify our functions to include securing the preservation of monuments in, on, or under the seabed within the seaward limits of the UK Territorial Sea adjacent to England. We also provide our advice in recognition of the English marine plan areas (inshore and offshore) as defined by the Marine and Coastal Access Act 2009 and the objectives and policies of published Marine Plans.



[REDACTED]



We understand from the information provided to us that the Offshore Energy Strategic Environmental Assessment (OESEA4) Environmental Report has been prepared to help inform offshore energy licensing and leasing decisions by considering the environmental implications of a proposed plan/programme and the potential activities which could result from its adoption. We are aware that the above referenced Environmental Report addresses:

- renewable energy (offshore wind, wave, tidal stream and tidal range);
- further licensing for offshore oil and gas exploration and production;
- further leasing/licensing for hydrocarbon gas storage and unloading;
- carbon dioxide transportation and storage; and
- the offshore production and transport of hydrogen.

We appreciate that draft plan/programme subject to this SEA is to be considered in the context of overall UK energy supply policy and greenhouse gas emissions reduction targets.

The main objectives of the draft plan/programme are to enhance the UK economy, contribute to the achievement of carbon emission reductions and security of energy supply, but without compromising biodiversity and ecosystem function, the interests of nature and heritage conservation, human health, or material assets and other users.

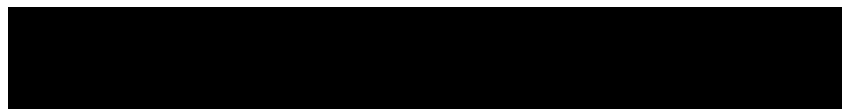
The focus of attention for Historic England will be on those energy related projects included within the SEA as spatially relevant to any areas that are subject to English jurisdiction e.g. the Inshore and Offshore Marine Plan Areas.

In the “Overview of the Environment” we appreciated the detail given to the identification of past geological and geomorphological processes, which demonstrate the influence of aeolian, fluvial and glacial activity in both marine and terrestrial environmental conditions. Furthermore, it is relevant that attention is given to perceptions of seascape (as defined by the European Landscape Convention 2000) and included within published marine plans in England, inclusive of historical and archaeological character policy. The summary of cultural heritage as relevant to OESEA4 captures an important matter regarding the numerically few sites that are designated when considering the total resource. It is therefore relevant to highlight how published marine plans recognise this matter. Planning, management and decision-making needs to take into account non-designated heritage assets that are or have the potential to become of significant interest and the likelihood that presently unknown heritage assets will be discovered because of seabed development. However, we noticed the following quote “With the exception of shipwreck, all designated sites to date are terrestrial” (page 20/740), which should be amended to factor in aircraft wreck automatically afforded ‘protected place’ status through the Protection of Military Remains Act 1986.

We noticed the extensive list provided under “Decommissioning” (pages 28-29/740) which presently consider cultural heritage thus:

“Physical damage to submerged heritage/archaeological contexts from infrastructure construction, vessel/rig anchoring etc and impacts on the setting of coastal historic environmental assets and loss of access.”

The above matters would appear to be relevant to the operation and maintenance period of the development. However, for decommissioning account should be taken of



cultural heritage as might be discovered during the operational period of the development. It is therefore a relevant matter that any decommissioning plan is prepared in consideration of any necessary mitigation.

In the “Assessment Summary”, under “Landscape/seascape” (36/740), we appreciate the realisation that while offshore wind turbine generator arrays are now being positioned further away from the coast, such developments are now defining aspects and character of the seascape in parts the UK marine area. We are therefore aware of the attention given to attempting to quantify such development as presented by A.B. Bugnot et.al. (2020) “Current and projected global extent of marine built structures” (published in *Nature sustainability*)¹. We also are aware of the attention given to national policy (vis. renewable energy) and factors in decision-making that should identify whether the adverse effects on seascape character are considered to outweigh the benefits. For example, secondary impacts on tourism and recreation, or on internationally recognised areas such as World Heritage Sites.

In Section 3.5 (SEA Objectives), we concur with the following objectives:

- “Protects the historic environment and cultural heritage of the United Kingdom, including its setting”; and
- “Contributes to archaeological knowledge”

In Chapter 4 (Overview of Environmental Baseline) we appreciate the attention given to the wealth of palaeo-environmental evidence that can be encountered in the coastal zone, such as flint artefacts from the Cromer Forest-bed Formation (Suffolk), which date to as early as 700,000 years. It is also that case that palaeo-landscapes will be encountered by seabed developers on the continental shelf between the UK and Europe. It is also relevant that it is highlighted that the record for wreck sites is biased towards those from the post-Medieval and later periods. It is therefore to be expected that seabed developers will encounter presently unknown historic sites which will need to be factored into effective mitigation management measures at the project-level.

Sub-section 4.4.12.1 (Implications for SEA) alludes to the application of cultural heritage in the context of international and national protection measures and planning policy. We therefore consider it relevant to mention the project commissioned through the Offshore Wind Evidence and Change programme to update the original Anglo/Dutch publication *North Sea Prehistory Research and Management Framework*². The digital publication of this research and management framework is directly relevant to the SEA objective “Contributes to archaeological knowledge” and its application and use at the project-level. However, strategically, assessment exercises conducted across the range of offshore energy projects considered by this SEA should allow for cumulative gain in knowledge. The critical matter therefore is access to this information and its use to inform subsequent assessments and the decision-making process. We therefore highlight here the UK-wide initiative that is the Online Access to the Index of Investigations (OASIS³). OASIS is used for reporting, publishing and archiving reports on heritage investigations relating to the terrestrial and marine environments covering all aspects from earliest prehistory to 20th century, built heritage research through to geophysical survey.

¹ <https://www.nature.com/articles/s41893-020-00595-1>

² https://historicensland.org.uk/images-books/publications/ns-prehistory-research-manage-framework/10278_north_sea_prehistory_web/

³ <https://oasis.ac.uk/>



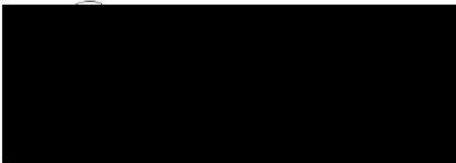
In sub-section 5.8.2.5 (Seascape sensitivity) we noted the consideration given to World Heritage Sites (WHS), scheduled monuments or landscapes of historic interest and we therefore refer you to our Historic Environment Advice Note 15 *Commercial Renewable Energy Development and the Historic Environment* (2021)⁴, which includes consideration of the contribution made by setting to the importance of heritage assets.

Section 5.8.3 (Spatial consideration) in the description provided of the Regional Seas there is helpful consideration of seascape historic character which is not solely visual. We appreciate the attention given to perception of seascape character that encompasses prehistoric landscapes as now found on, within and under the contemporary seabed and the legacy of historic maritime activities as shaped by periods of conflict as well as the legacy of merchant trade and changing fishing practices over past centuries.

We concur with the consideration in section 5.14 (Ancillary development) of potentially significant effects includes “Physical damage to submerged heritage/archaeological contexts from infrastructure construction, vessel/rig anchoring etc.” We also appreciate the attention given in section 5.15 (Overall spatial consideration) to matters inclusive of “visual intrusion”. However, we consider it relevant to consider the longevity of energy developments and what other stakeholder activities which may be inadvertently exclude. In particular, the effect on access for survey and investigation of palaeo-environmental exposures or other examination of in-situ archaeological sites and complexes.

We concur with the conclusion in “Cultural heritage – Consideration of sources of potentially significant effect” as defined by the alternative options identified that there remains a potential minor negative effect on this topic. The additional information provided within Appendix 1i: Cultural Heritage useful supports the conclusions drawn by the Environmental Report. To ensure matters are kept up to date, we take this opportunity to direct you to the online list for current designated wrecks: <https://historicengland.org.uk/listing/the-list/advanced-search-results> for example to include the scheduled wreck sites of USS LST 507⁵ and 531⁶.

Yours sincerely,



⁴ <https://historicengland.org.uk/images-books/publications/commercial-renewable-energy-development-historic-environment-advice-note-15/>

⁵ <https://historicengland.org.uk/listing/the-list/list-entry/1463496>

⁶ <https://historicengland.org.uk/listing/the-list/list-entry/1463495>





[Redacted]

[Redacted]

24th May 2022

Consultation on the UK OESEA4 Environmental Report

Thank you for consulting NRW on the Environmental Report (ER).

The statutory purpose of NRW is set out by the Environment (Wales) Act 2016. In the exercise of its functions NRW must pursue sustainable management of natural resources in relation to all of its work in Wales and apply the principles of Sustainable Management of Natural Resources in so far as that is consistent with the proper exercise of its functions. NRW's duty (in common with the other public bodies covered by the Well-Being of Future Generation (Wales) Act 2015) is to carry out sustainable development. This means, in general terms, looking after air, land, water, wildlife, plants, and soil to improve Wales' well-being, and provide a better future for everyone. NRW are also advisors to the Welsh Government on the natural heritage and resources of Wales and its coastal waters.

Under the Environmental Assessment of Plans and Programmes Regulations 2004 (as amended), NRW is a statutory consultee for all plans, programmes & strategies within Wales and for those outside Wales whose effects could extend in to and have effects on the environment of Wales. Our comments are therefore provided in the context of this responsibility.

NRW considers that the ER comprehensively and systematically addresses the effects of plan activities. We agree with the approach that has been taken and with the overall conclusion of the ER: to proceed with the plan but restrict the areas offered for leasing and licensing temporally or spatially.

We welcome the inclusion of many of the suggestions we made in our response to consultation on the Scoping Report (letter dated 7th May 2021). Below we have made some additional general comments on the assessment, mostly on the recommendations which we consider will be critical to the successful delivery of the plan, followed by more detailed comment on the text of the ER.

If you have any questions regarding this response, please contact [Redacted] [Redacted] in the first instance.

Yours faithfully,

[Redacted Signature]

Sustainable Places Land and Sea Manager

[Redacted Address]

General Comments

Navigating the Report

1. The size of the ER has understandably increased as the scope of the plan and complexity of issues increases. It is however very difficult to navigate the report when reviewing and better indexing of sections and use of hyperlinks could be explored for future assessment documents.

Consenting Responsibilities in Wales

2. There are references to consenting regimes and responsibilities throughout the document that do not accurately capture arrangements in Wales. For example, the sections on offshore wind, eave and tidal on page 25 should reflect that Welsh Government is responsible for licences under Section 36 of the Electricity Act (the same would apply to Section 2.4.1 and Appendix A3.2). In addition, within the Welsh inshore and offshore area, NRW are the Marine Licensing Authority, acting on behalf of Welsh Ministers. A full breakdown of consenting arrangements for offshore renewable energy in Wales is available [here](#). In relation to dredging and dredge arisings, Section 5.9.3.2 refers to the MMO's Marine Licence permitting system but in Wales the appropriate body for licensing these activities would be NRW, acting on behalf of Welsh Ministers.

Recommendations

Spatial Considerations

3. Welsh Government, with support from NRW and the JNCC, are currently working with a task and finish group of marine stakeholders to identify a small number of possible Marine Conservation Zones (MCZs) within Welsh waters. The MCZs will be partly determined by the sensitivity of the designated features to other activities but the areas of search overlap with areas known for their suitability for offshore wind, especially in the Celtic Sea. Multi-use MCZs are likely to cover relatively small areas and it may be possible to design energy development plans in such a way that avoids these areas completely so minimising any potential conflicts with future designations. Recommendation 1 could be amended to also encourage energy planners to work closely with Welsh Government to ensure the two processes are coordinated.
4. Although covered in Chapter 5 of the ER, Recommendation 7 might also refer to safeguarding policies in the Welsh National Marine Plan - which aim to reduce the risks associated with conflicts between different sectors - and the work that Welsh Government is undertaking to explore possible Strategic Resource Areas that give effect to those policies. Engagement with the work is via membership of a Stakeholder Reference Group and stakeholder engagement could be encouraged to provide advice as the work evolves.
5. Defining the extent of geographical effects is a critical first step in any assessment process and the need to address far field effects of tidal range technologies is well explained in the report. However, these focus mostly on defining physical processes and the use of bird foraging distances. The use of Marine Mammal Management Units (MMMUs) to define possible effects of most technologies upon marine mammals should also be referenced. NRW's position (submitted with our comments on the scoping report) is that marine mammal sites and populations that are within the same MMMU as the location of any activity should be screened into assessments of that activity. Whilst this does not alter our view on the overall

conclusions of this SEA, it would be sensible to reference the role that MMMUs can play in assessments.

Managing Environmental Risk

6. This section should refer to the Offshore Transmission Network Review (OTNR) which seeks to deliver the necessary coordination to reduce costs, environmental impacts and consenting risk. Achieving the required growth in offshore renewable energy will require significant additional grid infrastructure which could result in significant environmental impacts and consenting risk especially where the effects of multiple cables act cumulatively. Although much of the coordination will be delivered beyond the lifetime of this plan, it seems appropriate to encourage the plans and projects to align with the OTNR as it evolves. Although Recommendation 32 identifies the need to minimise the damage caused by cable protection, the cumulative risk and the need to minimise grid infrastructure through better coordination in the first instance should also be referred to.
7. Whilst we agree with Recommendation 8 that discusses the 'headroom' to accommodate bird mortality, it would be worth an additional recommendation reflecting the likely need to define 'headroom' to accommodate impacts on other receptors. For example, assessments of underwater tidal stream devices require an understanding of the ability of marine mammal populations to accommodate losses that might be caused by collision.
8. NRW welcomes Recommendation 9 which discourages further offshore leasing in areas important for red-throated diver habitat until there is better understanding of the scale of habitat degradation/loss across operational wind farms and how this translates into population level effects.
9. Recommendation 10 should also reference the need to improve data sharing so that future projects can benefit from information and learning from existing deployments.
10. We agree with recommendation 11 on the need for improved model capability and validation. However, this recommendation appears to limit the need for this to the North Sea. We recognise this need has been clearly illustrated through work on offshore wind in that area, but this requirement is equally valid for other parts of the UK and for the prediction of impacts from other technologies. The need for better models to predict the impacts of tidal range is of particular importance for Wales.
11. NRW welcomes Recommendation 17 that outlines the need for assessment of locations suitable for tidal range. The assessment rightly highlights the significant potential for far-field effects from this technology, particularly those caused by changes to physical processes. However, nowhere does the report describe the potential for these changes to go on to effect coastal habitats such as sand dunes, salt marsh, sea cliffs etc. Understanding both far field effects and possible changes to coastal habitats are likely to be key aspects of tidal range assessments and it would be helpful if the recommendations could give these prominence. It is also important to emphasise the need for assessments to establish the geographical extent of effects upon a full suite of physical processes (wave climate, current flows, sediment transport etc) as a critical first step in defining assessment envelopes.
12. BEIS guidance on decommissioning has been extended to cover tidal lagoon technologies ensuring that it is considered appropriately at the initial point of consent. However, given the likely long lifespan of tidal lagoons, NRW considers that all options (remove, remove partially or leave in place) should remain possible until close to the time of decommissioning itself when the environmental benefits and risks can be more accurately assessed. This might usefully be captured in the recommendations.

Improving the Marine Management Information Base

13. It would be helpful to acknowledge the considerable gaps in the evidence about the effects of tidal range development as any assessment of tidal lagoons will require these gaps in evidence to be addressed. The last comprehensive analysis of the environmental evidence base for tidal range was undertaken by the Severn Tidal Power Feasibility Study in 2010 although ORJIP Ocean Energy reviewed the state of evidence in a [Forward Look](#) in 2017. We understand that ORJIP Ocean Energy is to update the Forward Look with a critical assessment of evidence needs but, because ORJIP Energy and the Forward look process has no research funds of its own, the need for existing programmes to take forward the necessary research for this technology should also be identified.
14. We also believe there is a reasonable probability that, subject to scale, location and the conclusions of assessments of individual developments, consents for tidal range development may be subject to derogations under the Water and Habitats Regulations. This will require certain legal requirements to be met (to discount alternatives, confirm imperative reasons of overriding public interest and secure compensatory measures). Experience from offshore wind and the analysis undertaken by the Severn Tidal Power Feasibility Study has shown that meeting some of these requirements can be a major challenge. The recommendations might therefore reflect this and include the need for further work to understand if and how the derogations might be delivered for this technology.
15. Development of noise abatement technologies has so far taken place in shallower waters, with a focus on the North Sea. However, evidence from the North Sea might not be directly applicable to other areas, such as the Irish and Celtic Seas. There is therefore a need to improve understanding about if and how evidence from the North Sea can be applied to the Irish and Celtic Seas. NRW are in the process of developing an OWEC bid to characterise noise propagation and mitigation in the Irish and Celtic Seas which should hopefully address this matter, but funding is still to be confirmed at this stage and it would be appropriate to reference this evidence gap in the recommendations.
16. Disturbance to seabed sediments, for instance by scouring, potentially mobilises carbon, the fate of which is largely unknown, and capping seabed sediments by placement of infrastructure effectively prevents them from sequestering and storing carbon. The report references these effects but given that the topic is in its infancy the need for the significance of 'blue carbon' processes to be better understood and for these effects to be considered by project assessments could be included in the recommendations.

Best Practice/Mitigation

17. Recommendation 31 states that the development of compensatory measures should focus on sandbanks and reefs. However, in Wales compensation may be needed for cabling impacts on other Annex I habitat types and for impacts arising from other technologies which could involve a different range of habitats and species. Recommendations 31 should be amended to reflect this.
18. Offshore wind development is likely to move further offshore especially if floating turbine technologies become more established. However, the constraints analysis also highlights the ongoing potential for development closer to shore. This section might therefore include a recommendation reflecting the difficulty of mitigating visual impacts of offshore wind at the project level, especially after project locations have become fixed. This is because once a

site has been proposed, the open nature of most seascapes means the scope for mitigation of visually prominent development types is limited.

19. Net Gain is terminology that applies in England. The Environment Act (Wales) 2016 requires public authorities to seek to maintain and enhance biodiversity in relation to Wales and in so doing promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions. The Welsh National Marine Plan includes policy *ENV_01: Resilient marine ecosystems* which aims to “ensure that biological and geological components of ecosystems are maintained, restored where needed and enhanced where possible” and as such provides an opportunity for consideration of the inclusion of restoration and enhancement in a development project. We agree on the need for better evidence to understand the contribution that offshore energy activities might make to biodiversity resilience but it would be helpful if Recommendation 38 could also reflect the relevant Welsh policy.

Monitoring

20. The section on *Effects Monitoring* might also reference the extensive evidence programmes under the Offshore Wind Evidence and Change Programme, ORJIP offshore wind and Ocean Energy and the Offshore Wind Environmental Evidence Register as important sources for understanding effects of the plan.

Detailed comments on the text of the report

Non-Technical Summary

Prospectivity - offshore wind

Page xxii might also usefully reference Round 4 and Celtic Sea Offshore Wind leasing rounds.

Overview of main sources of effect and controls in place

Page xxvii should also reference other changes to water quality such as eutrophication as a potential effect of tidal range.

Assessment summary: biodiversity, flora & habitats

Page xxix (penultimate paragraph) refers to behavioural disturbance to mammals and fish over several kilometres. Although it is difficult to predict the exact distances, this may be understating the extent of the effects which may occur over many kilometres.

Page xxxi refers to tidal range impacts within an estuary or river basin. However, some effects, especially those resulting from larger schemes in the Severn may occur well beyond the boundary of the estuary or river basin. Understanding the zone of influence and functional linkage of development footprints with areas of importance for receptors elsewhere will be critical.

Page xxxi includes the sentence 'The potential for significant effects, in terms of regional distribution of features and habitats, or population viability, is considered to be remote.' Recent experience has shown that developments can result in adverse effects that are significant and project proposals have only proceeded subject to meeting the requirements of derogations from legislation. The sentence should perhaps be amended to read 'Given the availability of controls and potential for use of derogations with appropriately specified environmental compensation, the potential for significant effects, in terms of regional distribution of features and habitats, or population viability, can be managed effectively.'

Assessment summary: landscape/seascape

Page xxxiv (last paragraph) recommends siting new offshore wind generation capacity outside 12 nautical miles but that development closer to the coast may be acceptable under certain circumstances. Although we agree that seascape sensitivity is much reduced at such distances, it should also be recognised that significant sensitivity may still exist at 12 nautical miles from the coast and further depending on the size of turbines and proximity to designated landscapes. It may be worth referring to NRW's guidance on [visual effects and turbine size](#). (see also our comments on the Spatial Considerations recommendations).

Overview of the draft plan/programme

Energy policy context

This section should be updated to reflect recent announcements within the British Energy Security Strategy, especially the increase in aspiration for Offshore Wind.

There should also be reference to energy policy of the devolved administrations (for non-reserved matters) which includes commitments to Net Zero etc. Reference to [A Low Carbon Wales: Prosperity](#)

[for All](#) and to the energy related planning policy in the Wales National Marine Plan would be the most appropriate.

Assessment

Noise: sources of potentially significant effect

We have recommended additional references relevant to the consideration of underwater noise that would be useful to refer to in this section (we can provide full citations if helpful):

Offshore Wind

- Slabbekoorn et al (2010) - noise effects on fish
- Reinhall and Dahl (2011), Dahl *et al.* (2015) - propagation of pile driving noise in the form of a mach cone
- See Leighton (2012) doi 10.1121/1.3681137 - impedance mismatch and transfer of acoustic energy from air to water

Oil & gas – seismic survey

NRW's Evidence Report 448 https://cdn.cyfoethnaturiol.cymru/media/694743/underwater-acoustic-survey-evidence-review_nrw-evidence-report-448.pdf

Halvorsen & Heaney (2018).

Noise: consideration of the evidence - marine mammals (s5.3.3.1)

This section currently focuses on older (now mostly deprecated) m-weightings. We recommend the discussion be based on type II weightings and audiogram / group audiogram weightings in Southall *et al.* (2019). https://sea-inc.net/wp-content/uploads/2019/10/Southall-et-al_2019_MM-Noise-criteria-update-with-errata_Aq-Mammals.pdf

Noise: consideration of the evidence - Fish (s5.3.3.2)

There are criticisms of dBht metrics (Popper & Hawkins, 2019; Hawkins & Popper, 2014, 2016) and the definition of response criteria (Popper & Hawkins, 2019) that should be reflected in the discussion.

The data on hearing thresholds used for the dBht approach should ideally be based on accurate behavioural threshold determinations rather than measures of inner ear responses, as the latter are susceptible to flaws (Sisneros *et al.*, 2016). In addition, the ability of an animal to detect a sound may not necessarily elicit a behavioural reaction (Holgate *et al.*, in prep).

Noise: controls and mitigation (Page 164)

We suggest referring only to the Southall *et al.* (2019) injury thresholds, as this was what was agreed by SNCBs in the UK (use of Southall *et al.* 2007 has been deprecated).

It would be helpful to provide additional evidence to confirm the contention that the thresholds in Southall *et al.* (2019) are "highly" conservative.

Thresholds of PTS/TTS for other marine mammal groups have been established (Southall *et al.*, 2019 / NMFS, 2018). In such cases when assessing PTS/TTS, one would use thresholds relevant to the species being assessed.

Physical damage/changes to physical features & habitats: sources of potentially significant effect

Table 5.8 (page 174) should also include impacts on sediments and benthic habitats due to both scour and changes to physical processes in the "pathways" column.

Physical damage/changes to physical features & habitats: other renewables

Page 205 (paragraph 4) states that tidal lagoons are considered to be less damaging than barrages. This is perhaps an oversimplification given that some tidal lagoons currently under investigation are of considerable size and could enclose important rivers and estuaries. The overall implications of a lagoon or barrage will also be strongly dependent on the choice of location.

Physical damage/changes to physical features & habitats: summary of findings and recommendations

Page 216 (paragraph 1). We agree with the statement that tidal range could have significant impacts on benthic features. However, the statement '.....as a result of a change in water levels and sediment transport within an estuary or river channel' is incorrect as modelling, for example of the Swansea Bay Tidal Lagoon and Severn Estuary barrage, suggests changes to tidal height and phasing could extend for considerable distances (well beyond these areas).

Physical presence - ecological Implications: EMF

On page 296 reference might also be made to the potential for effects from compensation stations that might be needed along longer distance cables.

Physical presence - ecological Implications: Collision risk to fish and mammals

On page 292 (last paragraph) it is important to note that the evidence for fish collision risk with turbines of tidal stream devices may not be applicable to tidal range developments where turbines operate inside 'tunnels' or channels through lagoon or barrage walls. Fish have limited options to take avoidance or evasive action once entrained in the inflow to the turbines within 'tunnels'.

Physical presence - ecological Implications: controls & mitigation

The suggested mitigations (page 315) are mostly relevant to tidal stream and not tidal range.

Physical presence - Ecological Implications: likelihood of significant effects

As above, this focuses on the evidence base for fish collision with tidal stream devices. It is worth noting that the Severn Tidal Power Feasibility Study concluded that there was a risk of extinction of Annex II migratory fish population in the affected SAC rivers.

Landscape/seascape

Page 376 suggests that seascape sensitivity is highly variable at the regional and local scale and is difficult to account for in a comprehensive manner at a strategic level, particularly without any spatially explicit consideration of where future leasing will take place.

Nevertheless, it is important not to dismiss strategic consideration, since getting the right development in the right seascape is by far the best form of mitigation, as once a location has been defined, the open nature of most seascapes means the scope for mitigation of visually prominent development types such as offshore wind farms is limited. It might be helpful to reference strategic spatial assessments of offshore wind farms in Welsh waters published by NRW:

- [Natural heritage evidence to support strategic planning for marine renewable energy. CCW Policy-Research report](#)
- [Seascape and visual sensitivity to offshore wind farms in wales. NRW Evidence Report 315](#)

Recommendations

Spatial Considerations

Page 632 (Recommendation 1). We suggest amending the sentence ‘This recommendation is linked to others below on managing environmental risk, in particular for ornithology’ to also include marine mammals and fish.

Improving the marine management information base

Page 636 (Recommendation 20). The comment ‘Although there has recently been significant boat based and aerial survey effort in coastal waters, there is a general lack of modern survey data on waterbirds in offshore areas’ also applies to marine mammals and could reference wider marine mammal surveys such as SCANS (<https://scans3.wp.st-andrews.ac.uk/>) and the [ObSERVE Programme](#). Analysis of such data is also covered by MERP and NRW is preparing a report which analyses this information at a finer resolution which should be available shortly (Evans, P.G.H. & Waggitt, J.J. 2022 (in prep). Modelled Distribution and Abundance of Cetaceans and Seabirds in Wales and Surrounding Waters. NRW Evidence Report, Natural Resources Wales).

Page 637 (Recommendation 22). The reference to harbour porpoise could be widened to include other commonly occurring marine mammals (eg bottlenose, common and Risso’s dolphin, grey and common seal, and minke whale), the majority of which (except common dolphin) are features of conservation sites in the UK with bottlenose dolphin, harbour porpoise and grey seal being features/aspects of SSSIs/SACs/MCZ/RAMSAR around Wales.

Best Practice/Mitigation

Page 639 (Recommendation 35) (and other text relating to benthic features in this section). Although we support the overall intention of this recommendation, the text has a specific England focus and wording around MPAs and condition may not be directly translatable to Welsh SAC features and condition improvement.

Appendices

Appendix 1c Landscape and Seascape A1c3.8

In Wales local landscape designations are known as ‘Special Landscape Areas’.

Appendix 1c Landscape and Seascape A1c9 (Characterisation of regional Sea 6)

We suggest including a statement reflecting the particular importance of Land-sea-land views between designated landscapes across Tremadoc Bay and Caernarfon Bay, where the undeveloped

character of the seascape forms an essential intervening setting between Snowdonia National Park, Llyn AONB and Anglesey AONB, in addition to the more general views out to sea.

[Redacted]

[Redacted]

Date: 27 May 2022

By email only¹

UK OFFSHORE ENERGY STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA): ENVIRONMENTAL REPORT CONSULTATION

Thank you for your invitation to comment on the UK Offshore Energy Strategic Environmental Assessment (OESEA4) Environmental Report, which was published for consultation on 17 March 2022.

The Joint Nature Conservation Committee (JNCC), and Natural England have worked together closely to consider the OESEA4 and have agreed this letter to be a joint response. All Statutory Nature Conservation Bodies' (SNCB) place great importance on engaging with the SEA process. Natural Resources Wales (NRW), and Department of Agriculture, Environment and Rural Affairs (DAERA), and NatureScot will provide their comments separately to this joint response. Please note that in addition to being a part of this joint response, additional comments may be provided by the SNCBs on an individual basis, where any SNCB feels that they can add particular value to the consultation on an issue specific to them.

JNCC is the statutory adviser to the UK Government and devolved administrations on UK and international nature conservation. Its work contributes to maintaining and enriching biological diversity, conserving geological features and sustaining natural systems. Originally established under the Environmental Protection Act 1990, JNCC was reconstituted by the Natural Environment and Rural Communities Act 2006. Support is provided to the JNCC by a company limited by guarantee (JNCC Support Co) that the Committee established in

[Redacted]

[Redacted]

2005. JNCC delivers the UK and international responsibilities of the Council for Nature Conservation and the Countryside (CNCC), NRW, Natural England, and NatureScot.

Natural England is a non-departmental public body established under the Natural Environment and Rural Communities Act 2006 (NERC Act). Natural England is the statutory adviser to Government on nature conservation in England and promotes the conservation of England's wildlife and natural features. Under section 1(3) of the NERC Act Natural England's functions are exercisable in relation to England and the territorial sea adjacent to England up to 12 nautical miles. In addition, since December 2013, JNCC has delegated to Natural England the statutory powers to provide renewable energy casework advice in the English offshore region (12-200nm).

1. Background

The main objectives of the draft plan/programme are to enhance the UK economy and contribute to the achievement of carbon emission reductions and security of energy supply, but without compromising biodiversity and ecosystem function, the interests of nature and heritage conservation, human health, or material assets and other users of the marine environment.

The draft plan/programme includes the further licensing of offshore oil and gas exploration and production, further leasing for renewable energy (offshore wind, wave and tidal technologies), the further leasing/licencing for hydrocarbon gas storage and unloading, carbon dioxide (CO₂) transportation and storage, and the offshore production and transport of hydrogen.

- For renewable energy, the SEA considers the UK Exclusive Economic Zone and also the territorial waters of England and Wales. The area covered by the Scottish Renewable Energy Zone and Northern Irish waters within the 12 nautical mile territorial sea limit are not covered by renewable energy aspects of the plan.
- For gas and CO₂ storage, it considers UK territorial waters (except Scotland) and the UK Exclusive Economic Zone.
- For offshore oil and gas, all UK waters are considered in the SEA.

2. Overall conclusion

JNCC and Natural England agree with the SEA that **alternative 3** to the draft plan/programme is the preferred option, with **the areas offered for leasing and licencing restricted temporally or spatially** through the exclusion of certain areas together with a number of mitigation measures to prevent, reduce and offset significant adverse impacts on the environment and other users of the sea.

Our comments are provided in two sections – '**3. key comments**' concerning the report as a whole and issues to which we would see as high priority, and within a series of **appendices A-M** that highlight specific comments and issues within each section of the environmental report and associated appendices.

3. Key Comments

3.1 Spatial Issues

We agree with the recommendation that the area offered is spatially restricted to exclude sensitive areas. In addition, Defra intend to consult on a suite of pilot Highly Protected Marine Areas (HPMAs)² in 2022. These sites will need to be considered within spatial planning for siting of major marine energy developments.

We welcome the adoption of spatial plans as incorporated in the Marine Plans.

We would welcome the consideration of a hierarchy of activities in English waters, including new and emerging technologies such as Hydrocarbon and CCSU.

We note the Marine Spatial Prioritisation process will make some recommendations in September 2022 and suggest these should be reflected in the OESEA where possible.

3.2 MPA conservation status

We note that the Environmental Report finds that the evidence base for the conservation status of many sites is often poor and not widely available, which may hinder proper assessments.

Natural England conduct a rolling programme of MPA feature monitoring, the results of which are entered into the relevant marine data archive and integrated into our marine evidence database. This survey information is then combined with other relevant information (such as water quality data from the Environment Agency, pressure data from the Marine Management Organisation (MMO), local knowledge from site staff etc) in order to allow a feature and site-based condition assessment³. At present the Grant in Aid from Defra for marine evidence collection allows for Natural England to adequately monitor 5% of marine features. Whilst the process is clear, the underpinning evidence collection programme is currently insufficient to assess and update the Conservation Site Status for all features. However, significant marine evidence collection is being planned through the 3-year Defra lead marine Natural Capital Ecosystem Assessment: this will increase evidence collection, which will be archived in the relevant Data Archive Centres via Medin⁴.

Further information on all designated offshore MPAs is available under site information centres (SICs)⁵ detailing the protected feature, conservation measures, evidence and more depending on the site. The SICs also list the available survey evidence used to detail the sites and the Supplementary Advice on the Conservation Objectives provides key details on the protected features of the sites.

² Information on HPMAs can be found here: [Highly Protected Marine Areas | JNCC - Adviser to Government on Nature Conservation](#)

³ The process behind this is explained here: [Assessment of the Condition of Features in Marine Protected Areas - TIN178 \(naturalengland.org.uk\)](#)

⁴ MEDIN – Marine Environmental Data and Information Network

⁵ SICs: <https://jncc.gov.uk/our-work/offshore-mpas/>

We welcome the national collation of datasets from projects and plans into the relevant datasets, so that it can be used to inform condition assessments. We also welcome a Plan level requirement for energy development projects to submit data in the appropriate formats to the datasets.

3.3 As Built Parameters

We would welcome a requirement of the plan for consent variations to reflect the as-built parameters of marine infrastructure and in particular Offshore Wind Farms (OWF). It could be useful as an example of best practice that Environmental Statements were updated post consent to reflect the final design envelope and realistic worst-case scenarios as agreed during examination. This would facilitate more accurate assessments by Regulators and SNCBs post-consent and reduce headroom.

3.4 British Energy Security Strategy

We note the British Energy Security Strategy has been published (7th April 2022) since the consultation for the OESEA04 was published and presume that the SEA will be updated to reflect this.

We note that in relation to Offshore Wind, the Energy Security Strategy aims to:

- introduce strategic compensation environmental measures, including for projects already in the system, to offset environmental effects and reduce delays to projects
- implement a new Offshore Wind Environmental Improvement Package including an industry-funded Marine Recovery Fund and nature-based design standards to accelerate deployment whilst enhancing the marine environment

We look forward to working with Government and Regulators in relation to these matters. In the interim we suggest that the measures identified should not single out particular industries within the Plan, but rather should apply to all marine industries covered within the OESEA04 and would welcome further consideration of the applicability of this. We note the commitment in the Strategy to a 2022 licencing round for North Sea oil and gas developments.

3.5 Compensation

There have been a number of NSIP developments in the marine environment which have recently been granted Development Consent Orders, with an acceptance by the Secretary of State that they will have an Adverse Effect on Integrity to certain SAC or SPA sites and features and that compensation is therefore required, namely:

- Hornsea Three OWF- Sandbanks and reef features within the North Norfolk Sandbanks and Saturn Reef SAC and Wash and North Norfolk Coast SACs, and kittiwake within the Flamborough and Filey Coast (FFC) SPA.
- Norfolk Boreas OWF - Kittiwakes, razorbill and guillemot features within the FFC SPA, and lesser black-backed gull within the Alde-Ore Estuary SPA.

- Norfolk Vanguard OWF - Reef and sandbanks features within the Haisborough Hammond and Winterton SAC,
- East Anglia One North and East Anglia Two OWFs – Lesser black-backed gull within the Alde-Ore Estuary SPA, red-throated diver within the Outer Thames Estuary SPA, and kittiwake within the FFC SPA.

Some designated sites and features are already subject to an Adverse Effect on Integrity and are reaching their carrying capacity in relation to further marine development. This means that they are not currently on the trajectory to achieving favourable condition which is a legal requirement. Therefore, we advise that this is given due consideration and reflected, ideally in the form of site avoidance, within the review and strategic management measures identified within the OESEA04. We would like to highlight the mitigation hierarchy here and note that we would always suggest a strong preference for site avoidance. Compensation should always be the last option.

Similarly for harbour porpoise in the Southern North Sea SAC, some projects are getting very close to, and in some cases exceeding, daily or seasonal noise thresholds (as set out in draft SNCB management advice for piling) as assessed within the in-combination assessments of the potential impact of noise during construction for the Southern North Sea SAC harbour porpoise feature. Should thresholds be exceeded, compensation may be required.

3.6 Strategic compensation

We agree that there are gaps in our understanding of strategic compensation for the various activities within the SEA Plan. We note the British Energy Security Strategy will introduce strategic compensation measures, including for projects already in the system to offset environmental effects. We are currently contributing to discussions on suitable and appropriate compensation measures at both project and strategic levels and look forward to continuing to work with stakeholders on this matter.

3.7 Climate change interactions

Further consideration is required on the interaction of the activities included in the SEA with the effects of climate change, particularly with regards to increased pressures on environmental receptors. For example, as stated, plankton and fish communities are already changing in response to warming and this is likely to have implications for survival and productivity of top predators including marine birds. Will the activities within scope of the SEA further exacerbate this, e.g., due to effects of infrastructure on fish populations, distributions, and availability to top predators such as marine birds?

3.8 Industry comparisons and cumulative effects

In Section 5.4, the authors make comparisons between industries (fishing vs. oil & gas/offshore windfarms) regarding their physical damage footprint. We question the usefulness and contribution of such a comparison. We think that such a comparison should be avoided. We suggest that there should be a further emphasis on the cumulative effects of human activities on the environmental/ecosystem status.

As this is a plan-level assessment, all elements of the plan should be considered as ‘plan activities’ in the context of the cumulative effects assessment. In this instance, all elements of the plan have the same potential for cumulative effects. Whilst the areas are limited both spatially and temporally, the likelihood of significant effects should not be underestimated in terms of designated habitats and species. As previously stated, there are already several geographical areas where impacts from energy projects, either alone or in combination, are having significant impacts on designated habitats and features to the point where they are unlikely to recover in the timescale of this plan.

3.9 Scale of Impact

In a series of points the authors mention that OWF industries have/will have mainly a local environmental impact footprint while their regional footprint is/will be negligible. Considering the lack of scientific knowledge about the impacts of OWF on a regional spatial scale (e.g., impacts on population connectivity) we question the validity of the authors’ statement. In addition, some regionally or nationally important features are only present or protected in a handful of areas, and so any impact could be nationally significant. An example of this are the ongoing impacts to sandbank features in the Southern North Sea.

3.10 Consideration of all ecosystem components

We highlight that the sections related to knowledge gaps and the sections containing summaries of findings/recommendations about the ecological implications of offshore infrastructures are unbalanced referring almost exclusively to seabirds. There is a need for a much better balance across different ecosystem components (seabirds-mammals-fish-benthic-invertebrates) and we highlight the Offshore Wind Environmental Evidence Register (OWEER)⁶ as an invaluable UK-wide register of evidence gaps and research projects relating to seabed, marine mammals, and seabirds, to support the knowledge base for new offshore wind farm developments.

3.11 Mitigation of impacts on beaked and baleen whales

A possible increase in activity in deeper waters (e.g. west of Shetland) raises conservation concerns given the large abundance and diversity of marine mammals usually found (over 20 species of cetacean) and the presence of deep diving species such as beaked whales, which may be particularly sensitive to noise. As highlighted in the OESEA report there is uncertainty about the effectiveness of current mitigation measures for beaked whales and it would be helpful if the OESEA report provided concrete examples of measures that could be explored to reduce this risk. We highlighted this in the last OESEA (3) but, as far as we are aware, no progress has been made. In addition, we have little knowledge of the impacts from geophysical surveys and piling on baleen whales, which are also common in these areas.

3.12 Noise disturbance from large-scale projects

The noisy activities described may also disturb marine mammals at greater ranges than those where there is potential for injury. The OESEA rightly highlights the need for empirical

⁶ OWEER: 2021, JNCC, Offshore Wind Evidence and Change Programme, Offshore Wind Environmental Evidence Register | Marine Data Exchange

evidence regarding marine mammal behaviour during industrial activities to increase our limited understanding of the effects of noise disturbance on these species. This is particularly important given that existing evidence mostly comes from the installation of smaller scale projects, for example wind farms in shallow waters and demonstrator tidal projects. Uncertainty remains as to how applicable these findings are when assessing the risk from the considerably larger scale developments planned in UK offshore waters, and how transferable this data is to other locations and/or species.

3.13 Cumulative effects on marine mammals

The OESEA rightly considers it likely there will be cumulative effects on marine mammals resulting from the proposed licensing/leasing. It is reasonable to assume that on an individual basis most, if not all, projects will not have a significant effect on large and wide-ranging populations of marine mammals. However, caution is required for small populations e.g., coastal bottlenose dolphin populations. It is the potential impact resulting from the combined effect of several pressures on a population that could cause declines. We agree that planning and operational controls can reasonably cover the risk of auditory injury that could result from noise exposure. However, the risk of disturbance, and particularly cumulative disturbance, is considerably more difficult to assess and mitigate. The lack of adequate cumulative effects assessments (CEAs) is a major shortcoming of current regulatory processes and there is an urgent need to establish ways in which this can be undertaken and to develop the means to manage cumulative effects if needed.

3.14 Population-level impacts on harbour porpoise

The Habitats and Wild Birds Directives Marine Evidence Group (MEG) report referred to in the OESEA (Tougaard *et al.* 2016) used a habitat loss approach to look at the effects of disturbance on the North Sea harbour porpoise population. While it concluded that a non-trivial level of acute disturbance from planned offshore construction activity up to 2020 would not compromise the long-term health of the population, the authors highlighted that their conclusions are not unequivocal and that there are critical information gaps. In addition, offshore wind installation in UK waters was the only pressure considered in this assessment; while it is predicted to have a much lower effect on the population than bycatch, there remains uncertainty as to whether the addition of noise disturbance could affect the long-term health of the population. The level of construction required in the next decade to enable the Government to reach its renewables targets, combined with requirements under the recently published Energy Security Strategy means that in some areas, continuous noise from multiple projects is likely for the foreseeable future. Whilst each development will aim to reduce its impacts, the combined impacts are a concern. Therefore, the MEG report's applicability to the next decade, whilst indicative needs to be considered with caution.

3.15 Controls and mitigations

The OESEA's Controls and Mitigation sections (e.g., Section 5.3.4) are in our view one of the key elements of an OESEA and therefore should be expanded. Evidence should be presented on the feasibility of alternative technologies for UXO clearance, seismic exploration, and the installation of wind farm turbines as well as the use of noise abatement techniques (e.g., bubble curtains) and their applicability in UK offshore waters.

3.16 Sub-bottom profilers in the renewables and cables sectors

Geophysical surveys using sub-bottom profilers (SBP) (Section 5.3.2.3) result in sound that is of lower amplitude but higher frequency than airgun surveys. There is a likely lower impact on marine mammals from these types of surveys. However, SBP surveys associated with the renewables and cables sectors tend to last considerably longer (weeks to months) than oil and gas related geophysical surveys (days), except for larger regional seismic surveys (of which there are only a few each year). This may result in large temporal footprints and the potential for extensive disturbance to species such as harbour porpoise. Indeed, according to the data reported to the UK Marine Noise Registry (MNR), SBPs are the largest contributor of impulsive noise in terms of number of days in the Southern North Sea Special Area of Conservation⁷ and likely in other areas too. There is, as mentioned in the OESEA, limited knowledge on the sound outputs of SBPs and particularly how they propagate and affect animals. In the UK, apart from Scotland, SBP surveys associated with the renewables and cables sectors are not regulated and therefore mitigation measures might not be employed and submission of data to the UK MNR is only voluntary. We know that efforts are underway to bring these activities into the regulatory process and we welcome that. Efforts to fill in the evidence gaps on the sound transmission and potential effects on marine mammals from these sources are also welcome.

3.17 Clearance of unexploded ordnance (UXO)

As identified in the OESEA, clearance of unexploded ordnance (UXO) has the potential to cause significant injury or death to humans and marine mammals. We welcome the reference to low-order approaches (page xxix NTS) however, we feel stronger language would provide an opportunity to advocate the use of such techniques. In November 2021, Defra together with the Department for Business, Energy and Industrial Strategy (BEIS), the MMO, JNCC, Natural England, the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED), DAERA, NatureScot, Marine Scotland and NRW published a joint statement⁸ setting out their position on the use of lower noise alternatives to high order detonation of UXOs within the marine environment. This position statement is not referred to and the preference for it is not made clear until the recommendations section of the report (page 640). In addition, the National Physics Laboratory⁹ conducted noise measurements in a quarry comparing high-order and low-order methods of clearing UXOs. This should be added to Section 5.3.2.1 (page 129), which summarises available evidence on noise levels from UXO clearance. At-sea tests were conducted in January 2022 however we still await the results.

3.18 Potential impacts of wave and tidal energy on marine mammals

The OESEA also correctly highlighted the limited information available regarding potential impacts (noise disturbance, collision risk and entanglement) from wave and tidal devices to marine mammals. We welcome the overview of evidence provided however recommend

⁷ JNCC. 2021. Impulsive noise in the Southern North Sea SAC (2015 to 2020). Final report to Defra.

⁸ [Marine environment: unexploded ordnance clearance joint interim position statement - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/marine-environment-unexploded-ordnance-clearance-joint-interim-position-statement)

⁹ Robinson et al 2020. [Underwater acoustic characterisation of unexploded ordnance disposal using deflagration - ScienceDirect](https://www.sciencedirect.com/science/article/abs/pii/S0927646020300011)

high-level project details (e.g. number of turbines and locations) are provided alongside to enable the results to be put into context, as most of this evidence has been collected at demonstrator sites with very small numbers of turbines (often one). It is unknown whether reported observations will be the same for commercial scale projects or whether the results can be transferred across species or to other locations.

4. Editorial issues

We have spotted numerous errors in grammar and syntax. We suggest to the authors to carry out a thorough check.

Please do not hesitate to contact me with any questions regarding the above comments.

Yours sincerely,

████████████████████
████████████████████
████████████████████

████████████████████
████████████████████
████████████████████

Appendix A – OESEA4 Environmental report

What is the draft plan/programme?

Page. ix, Renewable energy

This needs to be revised to include the new figures from the Energy Security Strategy. This also applies to other sectors presented within OESEA4 which should be updated as necessary to reflect the Energy Security Strategy.

Overview of main sources of effect and controls in place

Page. xxvi – xxviii

The list of potential impact pathways is generally comprehensive, but greater emphasis should be placed on the potential for developments to disrupt marine processes such as stratification and frontal systems, and the implications for marine productivity and dependent ecosystems.

Assessment Summary

Page. xxviii

Paragraph three refers to ambient noise indicators established in the Marine Strategy; we recommend the impulsive noise indicator is also referred to for completeness.

Page. xxix

Underwater sound: we consider that an externally facing National Noise Register to manage in combination marine noise is necessary to coordinate Site Integrity Plans, over multiple projects and encompassing a wide spatial and temporal scale. Until this is in place it will be difficult for regulators and SNCBs as advisers to monitor and manage noise mitigation measures across several projects.

Page. xxx

We acknowledge that only generic recommendations concerning mitigation can be provided in a plan-level assessment, however, there are inconsistencies in licensing requirements across industries which means appropriate mitigation cannot always be guaranteed at a project level. We agree that careful planning is vital to minimising future potential cumulative impacts to receptors such as marine mammals and highlight the importance of further research and development of construction methods (e.g., alternatives to impact piling) and mitigation methods (e.g., noise abatement systems) to reduce potential impacts.

Page. xxxii

Consent Variations: We would welcome a requirement for consent variations to reflect the 'as built' parameters of windfarms. It would also be helpful if Environmental Statements were updated post consent to reflect the final design envelope and realistic worst-case scenarios as agreed during examination. This would facilitate more accurate assessments by regulators post consent and allow more accurate forecasts of headroom.

Red Throated Diver: We welcome that future offshore wind leasing should avoid impinging in diver habitat. SNCBs also recommend a buffer of 10 km around designated sites. Please see the Joint SNCB Interim Displacement Advice Note March 2022¹⁰.

It is not clear how BEIS has concluded that collision risk modelling is 'highly precautionary' - we would observe that in the light of the high degree of uncertainty regarding impacts, there is no more precaution than is sensibly required.

Page. xxxiii, paragraph 4

It is stated here that *“for most species, displacement, barrier effects and collisions are all unlikely to be significant to bird populations at a strategic level, while it is recognising that collision risk is becoming a significant consenting issue in some areas, and generally, for a few species.”* Current advice is that impacts on gannet, kittiwake, and great black-backed gull (collision) and guillemot, razorbill and red-throated diver (displacement) from cumulative OWF consents are significant at the North Sea scale. We consider that for seabirds in the North Sea, the statement under-represents the potential impacts.

Page. xxxiv, paragraph 1

We suggest that references are required for statements regarding blue carbon.

Also, regarding the statement, *“when considered in the context of the habitat provided by the structures and its potential contribution to blue carbon sequestration”*, we would ask what evidence the authors could provide to support this statement.

Page. xlv, paragraph 1

We support the conclusions here, namely that *“The SEA recommends a precautionary approach to facility siting in areas known to be of key importance to bird and marine mammal populations unless evidence indicates otherwise, and also that information on the distribution, behaviour and interactions with offshore renewable devices is in many cases limited and that additional work is required to improve current models on marine mammal and bird response/collision risk.”*

Page. xlviii

Of the options set out, Alternative 3 is the preferred option to minimise environmental impacts.

¹⁰ Joint SNCB Interim Displacement Advice Note | JNCC Resource Hub

Appendix B – OESEA4 Environmental report

Chapter 2: Overview of the draft plan/programme

2.2 Energy policy context

2.2.3 Oil and Gas Authority strategy

Oil and Gas Authority (OGA) is now North Sea Transition Authority (NSTA).

Appendix C – OESEA4 Environmental report

Chapter 4: Overview of environmental baseline

4.4 Relevant existing environmental problems

4.4.1 Eutrophication

Natural England is doing considerable work in relation to nutrient neutrality. New interim guidance issued by Natural England will require Local Planning Authorities (LPAs) and developers to assess how planning proposals can mitigate the expected increase in nitrogen and phosphorus from a new development on sites protected under the Conservation of Habitats and Species Regulations 2017 – i.e., become nutrient neutral.

Using the latest evidence, Natural England has created a package of tools and guidance to help developments demonstrate that they do no harm, so that they can go ahead in compliance with Habitats Regulations.

4.4.5 Pressures on fish stocks

4.4.5.1 Implications for SEA

Some mention should be made to pressures on the stocks of key forage species (e.g., sandeel).

4.4.9 Problems associated with the conservation of species and habitats

We suggest that deep-sea sponge aggregations should also be considered and highlighted among the most vulnerable benthic ecosystem components.

4.5 Likely evolution of the baseline

4.5.3 Landscape/seascape

This section only seems to discuss Scotland and no other nations of the UK.

4.5.10 Conservation of sites and species

The MPA network is likely to include Highly Protected Marine Areas in the near future. Defra intend to consult on a list of sites Spring 2022. These sites will need to be considered within spatial planning for siting of major marine energy developments.

Appendix D – OESEA4 Environmental report

Chapter 5: Assessment

5.2 Potential sources of significant effect

Page. 116, box 5.1

We suggest rewording the statement “*Behavioural and physiological effects on marine mammals, birds and fish associated with construction phase noise*” to “*Behavioural and physiological effects on marine mammals, birds, fish **and invertebrates** with construction phase noise*”. For example, please see the publication by Solan et al. (2016)¹¹.

The statement “*Changes/loss of habitats from major alteration of hydrography or sedimentation (indirect effects on the physical environment)*” does not really capture the potential disruption of marine processes and associated impacts on primary productivity. It would be worth being more explicit about this potential impact.

Page. 117, box 5.1

We suggest rewording the *statement* “*Changes/loss of habitats from major alteration of hydrography or sedimentation (indirect effects on the physical environment)*” to “*Changes/loss of habitats **and ecosystem components** from major alteration of hydrography or sedimentation (indirect effects on the physical environment)*”.

Page. 118, box 5.1

We suggest rewording the statement “*Post-decommissioning (legacy) effects – cuttings piles, footings, foundations, in situ cabling etc*” to “*Post-decommissioning (legacy) effects **on habitats and ecosystem components** – cuttings piles, footings, foundations, in situ cabling etc*”.

5.3 Noise

5.3.2 Sources of potentially significant effect

This text is somewhat misleading as decommissioning will be required for renewable infrastructure in addition to oil & gas infrastructure.

We agree that operational noise has not been a concern for existing projects however turbine generators have increased in size in recent years, and they are predicted to get larger. It is unknown whether the level of noise in the water column will also increase as generators become larger, or how it will differ if they are located on floating foundations.

¹¹ Solan et al. 2016 “Anthropogenic sources of underwater sound can modify how sediment-dwelling invertebrates mediate ecosystem properties”. Scientific Reports 6, 20540, <https://www.nature.com/articles/srep20540>

5.3.2.1 Offshore wind farms

This states turbine foundation installation usually requires 1-2 hours of piling per pile and references Thomsen, 2006. The diameter of monopiles has increased in size in recent years and these take longer to install, therefore it's not appropriate to assume this duration for all piling when considering potential disturbance. In recent wind farm applications (e.g. Hornsea 4) the applicants use a worst-case scenario of ~4 hours to install a monopile foundation. Similarly, the review of measurements referred to (Nedwell et al. 2007) is also old and potentially outdated, as is some of the other data referred to in this section. Further data may be available soon as part of Offshore Renewables Joint Industry Programme (ORJIP) for Offshore Wind, Reducing Conservatism in Underwater Noise Assessment (ReCon) project¹².

Points that could be mentioned with regards to underwater noise from operation include the transition to direct drive turbines which may decrease the noise produced during operation (Stober and Thomsen, 2021), and that prediction of operational underwater noise from monopile sizes used today requires significant extrapolation and as such is a knowledge gap.

5.3.2.3 Oil and gas

For clarity, the use of sub-bottom profilers requires consent in the Oil and Gas industry specifically. In other industries regulated by the MMO, such surveys need only go through notification, which typically results in the data not being submitted to the MNR.

The JNCC Guidelines outline that multibeam echosounders (MBES) that use frequencies <100kHz (typically used in deep waters >200m) are of concern. For clarity it would be beneficial to refer to this potential concern for MBES using <100 kHz in deep waters OR amend the value to 100kHz to be consistent with the guidelines (if applicable).

We query the comment about noise from dynamic positioning (DP) being less than in transit. A reference should be provided to support this statement. Other sources (e.g., https://marine.gov.scot/sites/default/files/23_noise_underwater_0.pdf and references cited therein) suggest that source levels for large DP vessels are 180-197dB, which would be higher than the source levels mentioned for vessels in transit.

5.3.3 Consideration of the evidence

One point that perhaps could be mentioned is that permanent threshold shift (PTS) or temporary threshold shift (TTS) occurs across a specific frequency band of the individuals hearing. PTS does not mean an animal is deaf by default (Booth and Heinis, 2018).

5.3.3.1 Marine Mammals

When referring to the Marine Strategy Framework Directive (MSFD) Noise Register, this could be a good point to mention that it has been applied in UK waters as the Marine Noise Registry. The earlier mention of the MNR (page 134) could cross-reference this section, for context.

¹² Offshore Renewables Joint Industry Programme (ORJIP) for Offshore Wind | The Carbon Trust

The following papers/key results could be added to section 5.3.3.1 when outlining the evidence for various impacts:

- Tougaard et al., 2013 - specifically that they found a decrease in harbour porpoise sightings out to 26 km i.e., the paper that underpins the 26km EDR used for piling (especially as this 26 km figure is mentioned but without a reference to justify why it is used in UK guidance).¹³
- Graham et al. 2019 - specifically mentioning the development of the dose-response curve.¹⁴
- Benhemma-Le Gall et al. (2021) - evidence on disturbance from piling vessel noise.¹⁵
- Whyte et al., 2020 - for impacts to seals from pile driving.¹⁶
- Soloway and Dahl 2014 - calculation is often used to determine potential PTS zones and these can be in the regions of 10s of kms (bigger than measured by Salomons et al. (2021))¹⁷

We suggest that the Interim Population Consequences of Disturbance (iPCoD) is mentioned in the section on impacts from pile driving/OWF construction. The Nabe-Nielsen et al. (2018) paper referenced for example is in relation to OWFs, so unclear why it is mentioned here under O&G rather than under OWF.

Page. 138, Table 5.1

In the text the functional hearing groups of cetaceans have been referred to as low-, mid- and high-frequency, however in Table 5.1 the groups are listed as low-, high- and very high-frequency. Consistent terminology should be used to avoid confusion.

There appears to be some inconsistency as to whether striped dolphin is considered a species that is regularly present in the UK or not. It is listed in Table 5.1 as being regularly

¹³ Tougaard, J., Buckland, S., Robinson, S. and Southall, B. (2013). An analysis of potential broad-scale impacts on harbour porpoise from proposed pile driving activities in the North Sea. Report of an expert group convened under the Habitats and Wild Birds Directive – Marine Evidence Group MB0138. 38pp.

¹⁴ Graham, I. M., Merchant, N. D., Farcas, A., Barton, T. R., Cheney, B., Bono, S., & Thompson, P. M. (2019). Harbour porpoise responses to pile-driving diminish over time. *Royal Society open science*, 6(6), 190335. <https://doi.org/10.1098/rsos.190335>

¹⁵ Gall, B. L., Graham, I. M., Merchant, N. D., & Thompson, P. M. (2021). Broad-Scale Responses of Harbor Porpoises to Pile-Driving and Vessel Activities During Offshore Windfarm Construction. *Frontiers in Marine Science*, 8, 735. <https://doi.org/10.3389/fmars.2021.664724>

¹⁶ Whyte, K. F., Russell, D. J., Sparling, C. E., Binnerts, B., & Hastie, G. D. (2020). Estimating the effects of pile driving sounds on seals: Pitfalls and possibilities. *The Journal of the Acoustical Society of America*, 147(6), 3948-3958. <https://doi.org/10.1121/10.0001408>

¹⁷ Soloway, A. G., & Dahl, P. H. (2014). Peak sound pressure and sound exposure level from underwater explosions in shallow water. *The Journal of the Acoustical Society of America*, 136(3), EL218-EL223. <https://doi.org/10.1121/1.4892668>

present. However, it is not listed in the first paragraph of section A1a.8.2 in Appendix 1a.8; in this document it is listed as infrequent. This should be made consistent between documents.

Where "As above" is listed for Phocid seals in water, the two species of seals regularly found in UK waters should be listed.

Page. 140, Table 5.2

Suggest that something is added to the blank cells so that they don't look as if they haven't been completed, e.g., n/a, greyed out, a dash etc.

Page. 146, paragraph 3

The final few sentences of the paragraph referencing Russell et al. (2016) are more in relation to impacts from construction than during operation, therefore it would be better placed in the previous paragraph.

5.3.3.2 Fish

Page. 155, paragraph 4

Note that herring are hearing specialists and may be more affected by noise pollution than other species (Thomsen et al. 2009).¹⁸

Page. 155, paragraph 5

"Similarly, it has been suggested that wind farms and other renewable energy installations can act as artificial reefs once in operation (Inger et al. 2009)". Also note the possible attraction of birds to windfarms because of reef effects.

5.3.3.5 Invertebrates

Page. 159

We also suggest the consideration of the following publications about the effects of anthropogenic noise on benthic invertebrates.

- Wale et al. 2020: "From DNA to ecological performance: Effects of anthropogenic noise on a reef-building mussel". *Science of the Total Environment* ¹⁹.
- Solan et al. 2016 "Anthropogenic sources of underwater sound can modify how sediment-dwelling invertebrates mediate ecosystem properties". *Scientific Reports* 6, 20540²⁰.

¹⁸ Thomsen, F., McCully, S., Wood, D., Pace, F. & White, P. 2009. *A generic investigation into noise profiles of marine dredging in relation to the acoustic sensitivity of the marine fauna in UK waters with particular emphasis on aggregate dredging: PHASE 1 Scoping and review of key issues.* MEPF/08/P21, CEFAS, Lowestoft.

¹⁹ <https://www.sciencedirect.com/science/article/abs/pii/S0048969719329535?via%3Dihub>

²⁰ <https://www.nature.com/articles/srep20540>

5.3.4 Controls and mitigation

Our understanding is that the notification of intent to carry out a survey replaces the need for a Marine Licence for low-risk activities; the notification process is not linked to the EPS licencing process. If possible, the information in this paragraph should be checked with the MMO.

Low order techniques such as deflagration for UXO clearance should be mentioned in this section.

5.3.5 Likelihood of significant effects

Marine noise within the Southern North Sea SAC is already approaching daily and seasonal thresholds. Without a strategic management tool, current mitigation measures may not be sufficient in minimising the risks to harbour porpoise.

We are concerned that stating that as harbour porpoise have the lowest threshold, an assessment based on them will be precautionary for the marine mammals. This is an oversimplification. Specifically, because low frequency sounds may have little impact on harbour porpoise due to their peak hearing sensitivity to high frequencies, whereas they might have a large impact on low frequency cetaceans.

We are concerned by the statement that injury is only likely within 500m in most instances as it is an oversimplification. Injury zones from UXO clearance can be many kilometres. And the point about injury zones being larger when based on SEL_{cum} is also applicable to pile-driving.

Here it is stated that Regional Sea 3 has mostly harbour porpoise then bottlenose dolphin. In Appendix 1a.8 it is stated to be the other way around. This should be checked for consistency.

More information should be provided on how the list of key areas of marine mammal sensitivity has been selected. It could be useful to display the areas on a map (per species or combined). For example, where they are linked to protected areas.

We agree that impulsive noise is a big concern for marine mammals and that in many cases, noise thresholds proposed by Southall et al 2019 will be exceeded within a limited range from the noise source. We highlight UXO clearance is another example of when injury could occur at considerable distance from the noise source. Whilst harbour porpoise seem to be particularly sensitive to sound, it should not be assumed that protective measures aimed at this species will cover the risk to other species adequately. For example, the noise abatement techniques available tend to reduce the noise mostly above 250 Hz, which may leave low frequency cetaceans at risk. In addition, cumulative noise exposure (i.e., SEL_{cum}) is of concern not only to high-frequency but also to low-frequency cetaceans. It is important to assess the risk for each of the hearing groups, as different weighting curves are applied for SEL and so what is predicted to result in a negligible risk to harbour porpoise might still pose a risk to other hearing groups.

We acknowledge there are some limitations in the current mitigation guidance and would welcome discussions with BEIS on what additional mitigation measures could be

implemented for beaked whales. Updates to the JNCC mitigation guidelines are planned for 2022.

Page. 165, paragraph 2

“These EDRs do not apply to the waters of Scotland or Wales.” This is incorrect. The Bristol Channel Approaches, West Wales Marine and North Anglesey Marine SACs are jointly managed by JNCC and NRW. While NRW have not adopted the EDRs, JNCC’s advice remains that the EDRs are applied when estimating potential disturbance within harbour porpoise SACs in English, Welsh and Northern Irish waters (JNCC et al, 2020).

5.3.6 Summary of findings and recommendations

We agree that minimising noise emissions in the marine environment is important, but mitigation measures need to be underpinned by a regulatory process and not voluntary as stated here. This would also provide industry more certainty as to what is needed when applying for licences.

We wish to reiterate concern in relation to the SEA's statement stating that injury would only occur within limited ranges (10-100s of m) from seismic and pile driving. This does not reflect the distance of injury based on cumulative sound levels, from which impact ranges can be much larger. Injury distances from UXOs/explosives should be mentioned here too (with regards to injury and disturbance distances) for completeness.

Whilst we also recognise the value of the MNR in understanding activities, the MNR itself does not provide criteria for determining limits of cumulative impact or subsequent regulation of cumulative impact. At the moment, the MNR has only been used retrospectively to determine if SAC AEoI thresholds for noise disturbance have been surpassed. Therefore, in our view the recommendations of the previous SEAs are still applicable.

5.4 Physical damage/change to features and habitats

5.4.1 Introduction

Page. 173, paragraph 1

“Previous SEAs have compared the physical disturbance effects of oilfield activities and OWFs to those of fishing and natural events (e.g., storm wave action), concluding generally that effects are minor on a regional scale, although highly variable across the Regional Sea areas (DECC 2011, 2016)”. We suggest that the authors need to re-examine the validity of this statement, especially considering the limited knowledge about the environmental impacts that local activities may have on a regional scale e.g., on the connectivity of populations. Also, in the SEA03 JNCC noted that temporal length / permanency of impact is different to that of fishing, so the above statement in the report is not necessarily a valid comparison.

“With the exception of relatively few designated conservation sites which have fishery restrictions in place and temporarily or periodically closed areas (for fishery stock management purposes), trawling is effectively unregulated in the UK and can be of concern with regard to conservation of seabed habitats and species (e.g., Witbaard & Klein 1993, de

Groot & Lindeboom 1994, Jennings & Kaiser 1998, Kaiser et al. 2002a, Kaiser et al. 2002b). We would suggest removing the statement that *“trawling is effectively unregulated in the UK”*. Whilst it is true that there are limited spatial restrictions in place, fishing in the UK is a highly regulated activity (i.e., vessel type/size, gear configuration, catch, bycatch etc.). In addition, most vessels that target quota species are limited in where they can fish. It would therefore be wrong to suggest that vessels can fish anywhere they want.

5.4.2 Sources of potentially significant effect

Page. 174, table 5.8

The overall structure of the Table should be better and easier to read. It seems that references to the operation of infrastructures are missing (mainly there are references to construction and decommissioning).

“Physical effects of anchoring and infrastructure construction (including pipelines and cables), operation and maintenance, and decommissioning on seabed sediments and geomorphological features (including scour) (see Section 5.4.3.1)”. We suggest to the authors to add ‘marine organisms’ after ‘sediments’.

‘Source activity’ column does not include pre-sweeping. This activity should be considered and assessed as part of the report. There is text later in the report referring to sand wave clearance, but it should be included as an activity. Pressures include, but are not limited to, abrasion, penetration, disturbance and change in suspended solids.

5.4.3 Consideration of the evidence

5.4.3.1 Physical damage/change associated with construction phase

We highlight that the Hornsea 4 project, currently in examination, is contemplating the use of gravity bases due to ground conditions.

Page. 176. paragraph 1

“The scale of direct damage to features and habitat loss associated with long-term placement of structures on the seabed is generally in proportion to the size of the object, and the duration of effect is equal to the operational lifespan of the structure – or may be indefinite if complete removal is not feasible or cost-effective”. We suggest the authors consider the role of organisms’ life-history characteristics. Slow-growing organisms with a long lifespan will recover (much) more slowly compared to short-lived organisms.

Page. 179, paragraph 1

“...with SSC increases of up to 10mg/l above background levels expected to be confined to an area close to the wind farm (Smart Wind 2013)”. We suggest that the distance (in meters) should have been clarified.

Page. 179, paragraph 2

“As with potential dredging effects, the physical habitat recovery and benthic recolonisation of the working area around the foundations after installation is likely to occur, again with the

timescale dependent on the sedimentary regime, dispersal of individuals and seabed preparation methods". We suggest that a reference to support this argument is needed. To date, little research has been done in UK waters showing how quickly habitats recover and benthic recolonisation happens. We also suggest that a reference to the role of species' life-history characteristics is needed.

Page. 185, paragraph 1

"Turbine siting is informed by site survey which provides information on seabed topography and habitats, within the expected seabed footprint, allowing potentially sensitive features to be identified and reflected in the location selection". We suggest that this information should have been presented earlier.

Page. 188, paragraph 1

"The review recommended that the frequency of scour monitoring should be based on the geological and metocean characteristics, with areas covered by a thin veneer of mobile sediments requiring less monitoring than locations with large mobile bedforms, palaeochannels or sandbanks (MMO 2014a).". We suggest the addition of reference to the range of frequency regarding the post-consent monitoring.

Physical effects associated with the installation of cables

Page. 192

The report highlights the evidence gaps in post installation monitoring; specifically, sediment composition and benthic community data, and therefore the recoverability of habitats cannot be verified. We would like to see more post installation data that can provide this extra information.

Post-installation monitoring needs to be undertaken over an appropriate time scale in order to ascertain recovery of a habitat. As stated in the text, one or two years is not sufficient to see recovery. This is an important evidence gap, and it is worth highlighting that opportunities to gather this information have been consistently missed since the inception of the OWF industry in the early 2000's.

Page. 194

Natural England and JNCC advice to the Crown Estate on key sensitivities of habitats and Marine Protected Areas in English Waters to offshore wind farm cabling within Proposed Round 4 leasing areas April 2019, identified features which are considered to be highly sensitive to pressures associated with cabling. These features included rocky reefs, Chalk habitats, seagrass beds, maerl beds, subtidal sediments (mud, sand, coarse sediment, mixed sediment) peat and clay exposures, sheltered muddy gravels, submerged or partly submerged sea caves, stony reef, subtidal biogenic reefs including mussel beds and *Sabellaria spp*, saltmarsh, estuarine rocky habitats, intertidal sand and muddy sand, subtidal macrophyte dominated sediment, protected dunes, perennial vegetation of stony banks, annual vegetation of drift lines, coastal lagoons, circalittoral rock, sea-pens and burrowing megafauna and submarine structures made by leaking gas.

Page. 194, Introduction of hard substrates into a sedimentary environment

We suggest the authors include references in the text mentioning that the installation of anthropogenic structures in sedimentary environments may cause physical damage to protected habitats and species such as *Sabellaria spinulosa* reefs, *Arctica islandica* (ocean quahog), sea-pen and burrowing megafauna communities.

Page. 195

We are particularly concerned about sandbank MPAs in the Southern North Sea and the introduction of hard substrate and associated rock protection on these substrates.

Benthic compensation is also a requirement of the Norfolk Boreas OWF and Norfolk Vanguard OWF Development Consent Orders (DCO). The SEA should be updated to reflect these decisions. As some designated sites and features are already subject to an Adverse Effect on Integrity and are reaching their carrying capacity in relation to further marine development, we advise that this is given due consideration and reflected within the review and strategic management measures identified within the OESEA4. We would also like to emphasise that the OESEA4 should reflect a strong preference for site avoidance within the mitigation hierarchy, and compensation should always be the last option.

The Hornsea Three OWF Sandbank Implementation Plan has now been accepted by the SoS (April 2022).

The SEA recommends that the development of appropriate benthic compensatory measures for sandbank and subtidal biogenic reef MPAs with respect to cable protection is reviewed at a strategic level (as supported by JNCC and Natural England). We whole heartedly support this approach and are happy to provide advice to BEIS in relation to this.

Page. 195, paragraph 2

“High level advice with respect to sandbank habitats in relation to potential cable routes associated with the Round 4 seabed leasing (Natural England & JNCC 2019) indicates that these habitats are often found in high – medium energy environments and have the potential to recover from cabling activities pressures relatively quickly”. However, it should be noted that, whilst this is true, the NE & JNCC report went on to caveat this by stating that the introduction of hard substrate (such as cable protection), which is often required, causes the physical change to another seabed or sediment type and therefore likely permanent loss of extent of the existing habitat. It is particularly important in MPAs designated for sandbank features to consider these pressures in the context of other operations within the site, as many sandbank MPAs are already impacted by these pressures therefore reducing their capacity to withstand further impacts.

Page. 196, paragraph 2

“Previous attempts have not catalysed the collection of specific industry information on hard deposits in relevant MPAs required to reduce uncertainty in this area or have been limited by available data. As part of future permitting and licensing, data on the nature, scale and location of hard substrate deposition should be recorded and disseminated”. We support that statement and its importance for advancing knowledge about human impacts in MPAs.

Natural England have commissioned a report to provide recommendations for a system to host and map of 'as laid' positions of hard substrate deposits by marine industries and are currently awaiting the final report.

Page. 196, Suspended sediments

We suggest the authors make a reference to the role of intensity of occurrence, as well as the role of frequency of occurrence.

Page. 196, paragraph 3

"The extent of effects will vary according to the geographic location, frequency of occurrence and the tolerance of the species involved". We suggest the authors make a reference to the importance of knowledge around species' mobility and their life-history characteristics.

*"Similar effects may be possible in the cold-water corals found in deeper water of the UKCS such as *Lophelia pertusa*."* We suggest the authors add references supporting their statement.

Page. 197

"Suspended sediments". Seabirds can also be negatively impacted by suspended sediments through reduced successful foraging by decreasing the ability to forage visually. Additionally, sedimentation can indirectly affect marine birds by smothering the eggs and larvae of prey species.

Page. 198, paragraph 2

"Sabellaria spinulosa is described as being tolerant of smothering (MarLIN), this is supported by Last et al. (2011) who found it to be highly tolerant of short term (<32 day) burial in fine sand whatever the burial depth". We suggest the authors also consider the text from the OSPAR background document *Sabellaria spinulosa* which mentions that "...It is probably tolerant to smothering in the short term although this will affect feeding and growth and may interfere with reproduction depending on the timing"²¹.

Page. 199, paragraph 2

"Nephrops and Calocaris are able to restore burrow entrances following limited physical disturbance of the sediment surface (a few centimetres), and video observations of burrow and pennatulid densities on the Fladen Ground sediments show little cumulative effect of fishing disturbance." We suggest the authors add references supporting their statement.

*"Although the larval recruitment rates and settlement rates for these organisms are unknown, studies on the reproduction of *Pennatula phosphorea* and *Funiculina quadrangularis* suggest that these species have lecithotrophic larvae which have the ability to remain in the water column until suitable habitat is located, thus possibly avoiding*

²¹ [Microsoft Word - CH10_04_Sabellaria_spinulosa.doc \(ospar.org\)](#)

settlement on sediment disturbed by drilling mud and cuttings.”. We suggest the authors add references supporting their statement.

Page. 199, paragraph 3

“L. pertusa can tolerate short-term exposure to settling particles and the effects of partial low oxygen and anoxic conditions, but complete burial of the polyps for more than 24h has been shown to result in suffocation (Allers et al. 2013).”. We suggest the authors add references about the impacts of bottom trawling to cold-water corals²².

Page. 200, paragraph 2

“Direct impact from OWF foundations will be of relatively limited spatial extent, and in view of the wide habitat tolerance of Sabellaria (Jackson & Hiscock 2008)”. We suggest the authors re-examine/reword that statement as it seems to be in contradiction with statements above about the impacts of human activities on *Sabellaria*. We also suggest the authors consider the following publication about the impacts of human activities on *Sabellaria spinulosa* reefs:

- Reijden et al. 2019 “Discovery of *Sabellaria spinulosa* reefs in an intensively fished area of the Dutch Continental Shelf, North Sea”, Journal of Sea Research 144:85-94²³.

“...and in view of the wide habitat tolerance of Sabellaria (Jackson & Hiscock 2008), it is likely that scour protection would be as likely to support aggregations as does the surrounding seabed (particularly when overlain by a sand veneer).”. We suggest the authors add references supporting their statement.

“...Sabellaria reef...” “...for Annex I S. spinulosa...”. (p200). We suggest that references to the taxon/taxa is standardised as currently the use seems confused.

Page. 200, paragraph 3

“Cable placement and trenching, both within the array and shore cables, may have a greater spatial extent of disturbance, but will be of short duration and habitats will recover rapidly over buried cables.”. We suggest the authors add references supporting their statement.

Page. 206, Oil and gas

“Similar to OWF, the impact of oil and gas installations on the seabed are considered minor on a regional scale in comparison to fishing activities”. We suggest the authors re-examine their statement as the available knowledge about the effects of oil & gas and offshore windfarm effects on a regional scale is limited.

We also suggest the authors consider the following publications:

²² For example: Clark et al. 2019 “Little Evidence of Benthic Community Resilience to Bottom Trawling on Seamounts After 15 Years”. Frontiers in Marine Science 6:63, DOI:[10.3389/fmars.2019.00063](https://doi.org/10.3389/fmars.2019.00063)

²³ [Discovery of Sabellaria spinulosa reefs in an intensively fished area of the Dutch Continental Shelf, North Sea - ScienceDirect](https://doi.org/10.1016/j.jmr.2019.05.001)

- Vad et al. 2020 “Environmental controls and anthropogenic impacts on deep-sea sponge grounds in the Faroe-Shetland Channel, NE Atlantic: the importance of considering spatial scale to distinguish drivers of change” ICES Journal of Marine Science 77:451–461²⁴.
- Henry et al. 2018. “Ocean sprawl facilitates dispersal and connectivity of protected species”. Scientific Reports 8:11346 ²⁵.

Page. 208, Hydrocarbon gas storage and unloading

The use of non-hydrocarbon reservoirs (e.g., salt caverns) which require excavation may have physical impacts related to water quality and increased salinity as a result of brine extraction, which would be unique to this activity and maybe worth considering.

5.4.3.3 Post-decommissioning (legacy) effects – cuttings piles, footings, foundations, in situ cabling etc

Page. 213, paragraph 2

“...Stage 2 requires comparative assessment to determine the best option for handling the cuttings piles (BEIS 2018). It is considered unlikely that any oil & gas development resulting from the draft plan/programme will lead to the formation of a significant drill cuttings pile...”. We suggest this is expanded to explain what comprises a ‘significant drill cuttings pile’ or explicitly state that this is one that exceeds the threshold for OSPAR 2006/5.

For information Natural England have recently published a commissioned report on the feasibility of removing cable and scour protection. Scour and Cable Protection Decommissioning Study - NECR403 ²⁶.

5.4.4 Controls and mitigation

Page. 215, paragraph 2

“No measures are likely to be able to mitigate for the potential physical disturbance associated with tidal barrage and lagoon schemes.”. We highlight that this is very generic and all-encompassing. We would suggest this needs to be assessed on a case-by-case basis, and not at the SEA level.

5.4.5 Likelihood of significant effects

Page. 215, paragraph 3

“The consideration of evidence indicates that with the exception of tidal range, plan activities, particularly those associated with the construction phase are unlikely to cause significant effects at a Regional Sea level to seabed sediments, features and habitats given the localised and/or temporary nature of potential effects and the dynamic nature of many of the

²⁴ <https://doi.org/10.1093/icesjms/fsz185>

²⁵ <https://doi.org/10.1038/s41598-018-29575-4>

²⁶ <http://nepubprod.appspot.com/>

areas where development is likely to occur". We suggest the authors re-examine/reword their statement that the effects will take place only at the local level. For example, we suggest the replacement of the term "unlikely" with the term "unknown". There are major knowledge gaps (e.g., impacts on population connectivity) which need to be addressed to advance knowledge about the spatial scale of the damage. In addition, we suggest the authors re-examine/reword their statement that the effects will be only temporary. At a large extent the temporal character of the effects (temporary – permanent effects) depend on species' life history characteristics.

Page. 215, paragraph 5

"Regardless of extent of impact, where the near-bed SPM concentrations are naturally high, as in coastal and southern North Sea areas and the Irish Sea, the effects of anthropogenic sediment plumes are unlikely to be significant on the existing seabed communities.". We highlight that this statement in the Report is too generic. The impacts will depend on how much more suspended solids will be generated and the capacity for dealing with that of the benthic organisms involved. Cumulative effects need also to be taken into account.

5.4.6 Summary of findings and recommendations

The report makes several relevant recommendations here. Our expectation is that cable protection and other rock armouring within MPAs will be of a nature that allows it to be removed at the decommissioning stage. Therefore, developers will be expected to commit to deploying such protection as part of reducing impacts within MPAs, rather than just consider using it.

Page. 215

There is no reference to possible indirect effects on seabirds, such as through indirect impacts on herring. No reference to potential impact of sediment plumes on foraging.

Page. 215, paragraph 6

"Physical disturbance associated with activities resulting from future oil and gas licensing and OWF, wave and tidal stream leasing will be negligible in scale relative to natural disturbance and the effects of demersal fishing. The potential for significant effects, in terms of regional distribution of features and habitats, or population viability and conservation status of benthic species, is considered to be low". We suggest the authors avoid making comparisons among types of human activities (e.g., bottom trawling – offshore windfarms). These comparisons do not make any substantial contribution and can be misleading. Furthermore, we suggest the authors re-examine/reword the statement about the low potential of significant effects on a regional scale; these effects should be characterised as unknown and should be subject to future scientific research. In addition, as aforementioned, some regionally or nationally important features are only present or protected in a handful of areas, and so any impact could be nationally significant. An example of this are the ongoing impacts to sandbank features in the Southern North Sea.

Page. 216, paragraph 3

*“The SEA recommends that while some flexibility may remain for effects to be considered at the marine licensing stage, which may include changes to the national site network between the date of consent and construction, developers must ensure that realistic levels of impacts and where possible impact location, particularly those associated with cable installation and protection in sensitive MPAs, are assessed as part of their submissions at the consenting stage”. We suggest replacing “...realistic levels of impacts...” by “...realistic **worst case** levels...”. We also suggest considering the imminent designation of HPMAs.²⁷*

Page. 216, paragraph 5

Our advice would always be for comprehensive use of the mitigation hierarchy and advise avoiding the placement of hard substrate in the marine environment. However, in situations where this is not possible then we agree with the text *“...the volumes of rock used, for example, in cable armouring, foundation scour protection and pipeline protection and upheaval buckling prevention, must be the minimum required to provide the necessary protection...”*. Additionally, we support the use of alternatives that minimise the potential for permanent habitat change. Removal of existing infrastructure (including rock protection) is being considered as a compensation option as part of wider cross-government talks.

Page. 216, paragraph 6

“A further comprehensive strategic review of post-consent wind farm monitoring is required to inform the environmental assessment and consenting of future developments.”. We agree with the statement made here by the authors.

5.6 Physical presence – ecological implications

It is not clear why the why the authors have not made a reference to marine invertebrates in the Table starting the section.

5.6.3 Consideration of the evidence

5.6.3.1 Non-native/non-indigenous species introductions

Page. 256, paragraph 3

“In the North Sea (where natural reefs are not uncommon) the creation of artificial reefs from decommissioned platforms remains against UK policy, its commitments under OSPAR, and depending on water depths, obligations under UNCLOS”. We suggest the authors reword that statement as the OSPAR decision prohibits the dumping, and the leaving wholly or partly in place, of disused offshore installations within the maritime area.

5.6.3.2 Barrier to movement, displacement and other behavioural effects – marine birds

Page. 258, paragraph 2

²⁷ Highly Protected Marine Areas | JNCC - Adviser to Government on Nature Conservation

In the context of wintering waterbird MPAs, availability of habitat is an important consideration as well as population impacts, as reducing this impacts the ability of those sites to support the species for which they were classified.

Page. 260, paragraph 2

“At present, the priority species for assessment of displacement are typically diver and sea duck species, guillemot, razorbill, puffin and gannet; of these, diver and sea duck are considered the most sensitive species groups to offshore development and as such should have a 4km displacement buffer in assessments, instead of the standard 2km displacement buffer (NEJNCC 2017).” There is now considerable evidence of displacement at much greater distances than 4km for some species, in particular red-throated diver. See Joint SNCB Interim Advice On The Treatment Of Displacement For Red-Throated Diver (2022), which recommends for OWF in the vicinity of red-throated diver SPAs, a displacement buffer of at least 10km.

Page. 260, paragraph 4

“Furness et al. (2013), focusing on marine birds in Scottish waters, identified populations of divers (red, black and great northern)” should read as ‘red-throated’ and ‘black-throated’.

Page. 260/261

Note that the joint SNCB interim displacement advice note has recently been updated with regard to the assessment distance advised for red-throated diver; this is now 10km. This change is explained within a separate annex: Interim Advice On The Treatment Of Displacement For Red-Throated Diver, and is reflected within an updated joint SNCB interim displacement advice note (2022).²⁸

Page. 272, paragraph 5

“(e.g. depletion of <2% of available fat reserves even if birds had to travel an extra 30km).” Over what time scale is this considered? Is this depletion of <2% of fat reserves for each trip, or is this over the course of a season?

5.6.3.3 Barrier to movement, displacement and other behavioural effects – fish and marine mammals

Page. 277, paragraph 1

“Results of the meta-analysis, which took into consideration a number of covariates including characteristics of the wind farm, sampling design and ecosystem level characteristics, showed significant positive effects indicating greater abundance of fish inside of wind farms.” There is also the possibility of attraction of birds to windfarms because of reef effects, which may constitute positive impacts (access to prey) and/or negative impacts (increased risk of collision) for some species.

²⁸ Joint SNCB Interim Advice On The Treatment Of Displacement For Red-Throated Diver (2022) (jncc.gov.uk)

Page. 277, paragraph 3

We note that the following is an unvalidated statement, “*There was also evidence of a reduction in fish school observations in the lower part of the water column (at the turbine depth range) during peak flow velocities suggesting some avoidance behaviour associated with high flow rates.*”. We therefore suggest changing the wording to “suggesting **possible** avoidance behaviour”.

5.6.3.5 Collisions risk – fish and marine mammals

Context is needed when considering currently available evidence of collision risks with tidal devices, as much of that available is from demonstrator sites.

While it is true than not all collisions with tidal devices will likely result in death, the proportion that will is unknown, so while collision risk modelling may be precautionary, the level of precaution is unknown.

When considering entanglement with mooring lines, further explanation is required to explain how the tension applied to the mooring lines and array cables justifies a conclusion of no impact pathway and while the oil and gas industry may have not reported any cases of entanglement with floating platforms, this does not mean it hasn’t happened and these projects would not involve multiple floating structures with criss-crossing lines or cables. We agree the greatest risk relates to secondary entanglement with ghost fishing gear and that quantifying this risk is challenging.

5.6.3.7 EMF

We suggest the authors include in the report the following publications about the effects of EMFs on benthic species:

- 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.)”. Journal of Marine Science and Engineering 10 ²⁹.
- Scott et al. 2021. Exposure to Electromagnetic Fields (EMF) from Submarine Power Cables Can Trigger Strength-Dependent Behavioural and Physiological Responses in Edible Crab, *Cancer pagurus* (L.). Journal of Marine Science and Engineering 9 ³⁰.

5.6.3.4 Collisions risk – birds and bats

Page. 284

Note that the cumulative effects framework also assesses cumulative effects of displacement, and of collision and displacement together, on marine birds.

²⁹ <https://www.mdpi.com/2077-1312/10/5/564>

³⁰ <https://www.mdpi.com/2077-1312/9/7/776>

5.6.4 Data gaps and research

We mention that this section almost exclusively refers to seabirds while there are almost no references to other ecosystem receptors e.g., benthic habitats and species.

We highlight that key knowledge gaps still persist related to the distinction between temporary and permanent impacts (e.g., the ones arising from the installation of offshore wind turbines). We suggest that a clear reference is made to persisting challenges related to the distinction between temporary and permanent impacts.

Page. 311, paragraph 2

“A number of the critical evidence gaps are of particular importance in assessing the potential impacts from marine renewable energy devices to marine mammals, seabirds and fish. These have been summarised as follows (Clarke et al. 2021; aligned with ORJIP OE 2020,)”. We suggest the authors also include a clear reference to benthic habitats/ecosystem components and adjust the text accordingly.

We also suggest the authors consider the following publication about knowledge gaps and research related to benthic impacts from renewables:

- Dannheim et al. 2020. “Benthic effects of offshore renewables: identification of knowledge gaps and urgently needed research”. ICES Journal of Marine Science 77:1092-1108 ³¹.

5.6.5 Controls and mitigation

We agree that a significant barrier for commercial tidal energy is the uncertainty around impacts from operating underwater turbines at scale. While mitigation measures implemented at Strangford Lough provide useful evidence, this mitigation system was implemented for a single turbine. It is currently unknown how or if this type of mitigation could be implemented at a commercial scale project, both from a practical and financial perspective, or whether it could be adapted for other receptors. It is hoped that work proposed at the Morlais demonstrator project will help inform this topic.

Mitigation for impacts on red-throated diver, common scoter etc. from vessels may also require the re-routing of operations and maintenance vessels suggesting that more stringent measures than a code of conduct may be needed.

No reference is made to mitigating noise. The levels of operational noise from commercial scale tidal projects is unknown, and while we agree that acoustic deterrent devices (ADDs) are a useful tool when mitigating potential collision, this needs to be carefully managed to ensure unnecessary noise is not introduced to the marine environment.

Raising the rotor swept area of the turbines from the sea surface has been demonstrated to reduce the risk of seabird collisions and has been brought forward by a number of developers as a mitigation measure. This should be referred to here.

³¹ <https://doi.org/10.1093/icesjms/fsz018>

Regarding EMF and sensitive receptors such as lamprey, is it safe to assume that the evidence base will continue to grow? We consider that there may be a requirement for research to be commissioned regarding the potential impacts from EMF on lampreys migrating to/from SACs.

Page. 315, paragraph 3

The second half of the following sentence is unvalidated and a random statement, *“Consequently it is likely that larger fish are at greater risk from turbines strikes than smaller fish, with large, slow-moving elasmobranchs perhaps the most likely to incur injury.”*. We suggest removing *“with large, slow-moving elasmobranchs perhaps the most likely to incur injury.”*.

5.6.6 Likelihood of significant effects

There is reference to ‘high levels of precaution’ throughout this section. We do not believe the level of precaution is unduly high, and in fact in some cases may not be particularly precautionary in light of recent evidence.

We agree the causal relationships between marine mammal receptors and collision, displacement and barrier effects are complicated. Further research, including well planned monitoring at future projects will help to inform this topic.

Page. 321, Table 5.22

Whilst previous project impact assessment/consent discussions have focussed on collision and displacement as the main impact pathways of concern for marine birds, the recently designated marine SPAs, including Irish Sea Front SPA (Regional Sea 6) have conservation objectives relating to maintenance (or restoration of) prey resources within the SPA. Going forward, developments within/close to these marine SPAs will need to consider impacts on prey resource availability within these SPAs. Evidence on key prey for features/SPAs and impacts of infrastructure on these prey and their availability to SPA features, is lacking. More specific comments relating to this topic are provided in relation to the Environmental Report.

Guillemot and puffin (the later a named component of the seabird assemblage feature) at Farne Islands SPA pose consenting risks, as do puffin (again a named assemblage component) from Coquet Island SPA, and puffin at Flamborough & Filey Coast SPA (part of the seabird assemblage).

Isles of Scilly SPA features (including its seabird assemblage) may pose consenting risks depending on the scale/location of floating wind in the future.

Page. 323

Given the importance of the North Sea for auks and the number of OWF proposed, we note with concern that guillemot, razorbill and puffin are not already considered 'particularly vulnerable' for Regional Seas 1 and 2. Scotwind has identified guillemot and razorbill as key species of concern for this region, and they should be included here.

5.6.7 Summary of findings and recommendations

We highlight that this key section is unbalanced across ecosystem components/receptors as it refers almost exclusively to seabirds.

We agree that detailed monitoring is required on existing demonstrators: including baseline, construction and operational surveys of animal activity and behaviour to inform commercial scale deployment risk assessments and consenting.

There remain large gaps in our understanding of seabird distribution at different times of year, particularly in areas where there have been few developments to date (e.g. the English part of Regional Sea 1). Whilst projects such as POSEIDON (led by Natural England and funded under OWEC) are seeking to reduce the knowledge gaps, there is likely to remain a strong need for strategic bird survey work in candidate areas for further OWF development, in order to ensure that important areas are avoided. There is a strong focus in the concluding bullets of this section on impact assessment parameters, however in terms of managing environmental risk, identifying important sea areas for birds should be prioritised.

Page. 324, paragraph 4

“Insufficient knowledge of ecological receptors and their interactions with energy infrastructure, in particular seabird interactions with offshore wind turbines and marine mammals and fish with tidal turbines, hinder accurate predictions of impacts, which leads to precautionary assessments; this can then lead to consenting risks, which can delay or prevent the development of renewable developments. This is a critical issue given the imperative of energy transition and decarbonisation towards net zero by 2050”. We advise here that emphasis needs also to be given to the knowledge gaps about the impacts of offshore human infrastructure (e.g., EMFs) to benthic/benthopelagic ecosystem components.

Page. 324, paragraph 5

“The physical presence of offshore infrastructure and support activities may potentially cause behavioural responses in fish, birds and marine mammals through a range of different mechanisms”. We suggest the authors include a reference also to benthic invertebrates. We also suggest to the authors to consider the following publication:

- Scott et al. 2021. Exposure to Electromagnetic Fields (EMF) from Submarine Power Cables Can Trigger Strength-Dependent Behavioural and Physiological Responses in Edible Crab, *Cancer pagurus* (L.). Journal of Marine Science and Engineering 9³².

Page. 326

We would include mortality and productivity impacts of displacement and barrier effects, as a separate row to ensure it received sufficient attention.

5.7 Physical presence and other users

5.7.2.2 Fisheries

³² <https://www.mdpi.com/2077-1312/9/7/776>

Page. 345, paragraph 1

It should be noted that Inshore Fisheries Groups (IFGs) (Scotland), should now be referred to as Regional Inshore Fisheries Groups (RIFGs).³³

We suggest the clarification of 'offshore' on p.345. For example, "*The distribution of non-UK vessels is mainly in offshore waters (**beyond 12nm**)*".

Page. 345, paragraph 2

"The 6-12nm zone is however, an area of typically high fishing effort but less well understood and many foreign vessels operate in this area."

We suggest this is rephrased to, "The 6-12nm zone, however, is an area of typically high fishing effort but is less well understood and depending on access rights may include many foreign vessels (English and Welsh waters only)"

Page. 348, paragraph 4

"It is generally expected that the exclusion of fishing (or at least intensive trawling) effort would be likely to have a local beneficial effect on fish stocks, and also on reducing seabed disturbance and associated ecological effects."

We suggest the removal of "*and associated ecological effects*". This is very vague, and there is no definition of associated ecological effects. We also highlight that removal of effort at a local scale does not necessarily lead to a change in stock unless there is evidence of local/regional fidelity for a species. Most commercial fish species are highly mobile, so measures need to be imposed at a suitable scale. We suggest removing this statement unless there is some supporting evidence that can be presented.

5.8 Landscape/seascape

5.8.1 Introduction

5.8.1.1 Planning policy context

Page. 360, paragraph 9

The phrasing this paragraph could be made clearer to better reflect the intention of EN-1 5.9.9 to 5.9.13. The use of the word 'sites' is unhelpful when both AONBs and National Parks cover extensive areas. Please use the word areas in order to avoid potential confusion.

5.8.2 Consideration of the evidence

A reference to the height of the viewing location should also be included in the list of factors (3rd sentence).

³³ <https://rifg.scot/>

5.8.2.2 Contrast, lighting and navigational markings

A clearer reference should also be made to the 'lighting up' of structures at sunset and when the sun is low on the opposite horizon. Structures which are painted white, such as wind turbines are particularly prominent, especially should they be contrasted against a dark sky to their rear.

Page. 363, paragraph 4

There is next to no discussion on the effects of offshore wind turbine lighting (particularly aviation warning lights) on dark night skies. Such skies are an important quality of many coastal designated landscapes. Reference to this is needed.

5.8.2.4 Activity specific considerations

Page. 368, paragraph 1

30.6km should be 40.6km based on Table 7.4 of the White Consultants' 2020a report.

Page. 369, paragraph 3

To be more accurate and consistent the following needs to be replaced with the text provided.; that '*any consideration of coastal buffers is too generalised an approach....*' should read '*any consideration of generic coastal buffers*' on the basis that the Wales Buffer Study and the Suffolk Coast and Heaths AONB seascape sensitivity to offshore windfarms study, 2020 take the variables into account and are accepted.

A further use of the word 'sites' when the referring to designated landscapes. The use of word 'sites' is unhelpful when both AONBs and National Parks cover extensive areas. Please use the word 'areas' to avoid potential confusion.

5.8.2.5 Seascape sensitivity

Page. 375, paragraph 4

Should include a refence to the statutory purpose (the conservation and enhancement of natural beauty) of designated landscapes as this is the 'value' which is the key aspect for decision makers charged with determining scheme applications.

Page. 375, paragraph 5

The sensitivity of designated landscapes to offshore wind turbines located in their setting is always very high.

Page. 377, final paragraph

Reference to the importance society has placed on certain landscapes through statutory protection and a purpose to 'conserve and enhance natural beauty' should be made.

Regional Sea 6

Page. 400/401

The sensitivity of the English portion of Regional Sea 6 to offshore development omits the significance of this Regional Sea in providing the seascape setting for the Lake District National Park. Commentary should be provided which reflects this importance, matching the commentary provided for the Welsh designated landscapes. See figure 5.49. page 366. References to Whitehaven and Workington are overly simplistic in terms of characterisation (2nd para. p.402). Commentary should be made of Ravenglass and the Estuary of the River Esk.

5.8.5 Summary of findings and recommendations

Page. 407, bullet point 1

The height of the view should also be listed as a contributing factor.

Page. 407, bullet point 3

Delete the word 'relatively' in the first sentence. Reference is needed to the statutory purpose of national Parks and AONBs.

5.9 Marine discharges

There is no mention of the impact of marine discharges to seabirds in this section. Release of potentially toxic/hazardous material and suspended sediment may both have negative impacts to seabirds.

5.11 Air quality

5.11.1.3 Oil and gas

Noting the encouragement towards electrification of oil and gas, a strategic programme and assessment to support this would be welcomed, working towards a holistic approach with other marine industries planning out spatial prioritisation within the marine environment.

Consideration to any potential for overarching strategic and spatial decommissioning plans that puts reuse and repurposing of infrastructure for CCS (where applicable) at the forefront, thereby allowing for strategic and holistic assessment of environmental impacts upfront and streamlining engagement on all this work.

We advise that decommissioning needs to be considered earlier within project planning. There are a number of legacy installations that cannot be removed (either for technical or health and safety reasons), these reasons need to be recognised and understood. We encourage a commitment that these types of installations are no longer used by the industry moving forwards. This will ensure that installations and supporting infrastructure can be removed (if not being repurposed) thereby reducing the number of "legacy installations." This will ensure that removal creates space and opportunities for nature recovery and/or the potential for use by other industries rather than by damaging an area where no further activities/recovery can take place.

There is a need to consider strategic benthic compensation measures across marine industries and this join up should be encouraged. As highlighted on page 610 there are a number of industries that contribute towards impacts of physical damage/change to features and habitats (referring to section 5.16.4), with a number of Round 3 projects in the Southern North Sea being required to implement a package of measures for potential impacts resulting from deployment of cable protection. We take this opportunity to highlight that impacts from Oil and Gas pipeline protection should be considered in the same light and therefore any opportunity to recognise this should be made along with encouragement for further development of in-combination and cumulative assessments across industries (see section 6.5-31).

5.13 Accidental Events

5.13.3.2 Effects of accidental releases

Environmental effects - Accidental events related to exploration and production

Page. 488, paragraph 3

“The most vulnerable components of the ecosystem to oil spills in offshore and coastal environments are seabirds and marine mammals due to their close association with the sea surface”. We suggest the authors add a citation supporting their statement about the higher sensitivity of seabirds and mammals compared to other ecosystems components (e.g., deep-sea benthos). We suggest also considering the relative magnitude of impacts of offshore oil spills in deep-sea benthic habitats and ecosystem components as it seems that such a reference is missing.

We suggest that the authors should also consider the following recent scientific evidence about oil-related research in offshore northeast Atlantic and North Sea. Specifically:

- Gallego A et al. 2018. Current status of deepwater oil spill modelling in the Faroe-Shetland Channel, Northeast Atlantic, and future challenges. *Marine Pollution Bulletin*, vol. 127:484-504. doi: 10.1016/j.marpolbul.2017.12.002.
- Perez Calderon et al. 2018. Bacterial Community Response in Deep Faroe-Shetland Channel Sediments Following Hydrocarbon Entrainment With and Without Dispersant Addition. *Frontiers in Marine Science: Deep-Sea Environments and Ecology*, vol. 5, pp. 1-17.
- Gontikaki et al. 2018. Hydrocarbon-degrading bacteria in deep-water subarctic sediments (Faroe-Shetland Channel). *Journal of Applied Microbiology*, vol. 125, no. 4, pp. 1040-1053 ³⁴.
- Perez Calderon et al. 2019. Pressure and temperature effects on deep-sea hydrocarbon-degrading microbial communities in subarctic sediments. *Microbiology Open*, vol. 8, no. 6, e00768 ³⁵.

³⁴ <https://doi.org/10.1111/jam.14030>

³⁵ <https://doi.org/10.1002/mbo3.768>

- Potts et al. 2019. Characterisation of microbial communities of drill cuttings piles from offshore oil and gas installations. *Marine Pollution Bulletin*, vol. 142, pp. 169-177 ³⁶.

Environmental effects - Accidental events related to exploration and production

Page. 492, paragraph 2

“...the presence of numerous natural oil, gas and brine seeps and associated microflora and other biota in the Gulf of Mexico may allow a more rapid recovery than would be the case in other deep sea areas”. We suggest the authors add references supporting their statement.

Accidental events related to carbon dioxide storage

Page. 493, paragraph 2

“...as impacts will depend on species and life stages present, nutritional status of individuals, and length of exposure (e.g. Kroeker et al. 2013, Lessin et al. 2016, Blackford et al. 2020).”. We suggest that the authors should include a reference relating to the role of pH change and not just to the length of exposure.

Page. 493, paragraph 5

“Most organisms which have been investigated tend to tolerate a large change in pH (to 7.3) before significant effects including mortality are observed at lower levels (<7.0) (Dorey et al. 2013, Hu et al. 2014, Murray et al. 2013, Morgan et al. 2014).”. We suggest that the authors should re-examine that statement as it looks misleading.

We would suggest that in the section related to ocean acidification the authors also consider the following study:

- Morato et al. 2020 Climate-induced changes in the suitable habitat of cold-water corals and commercially important deep-sea fishes in the North Atlantic. *Global Change Biology* 26:4 ³⁷.

Socioeconomic effects

Page. 495, paragraph 5

“...for many oils in the North Sea, the specific gravity is lower than seawater, with oil expected to remain on the water surface/penetrate the top few metres of the water column), the potential for spills to reach the seabed is relatively low”. We suggest to the authors to use a citation in that statement.

5.13.4 Controls and mitigation

Page. 497, paragraph 6

³⁶ <https://doi.org/10.1016/j.marpolbul.2019.03.014>

³⁷ <https://doi.org/10.1111/gcb.14996>

“...describes this as an incident which results, or is likely to result, in a significant adverse effects...”. We advise the authors carry out a thorough check of the Report as it seems that there are several errors in grammar and syntax.

“...with Directive 2004/35/EC”. We suggest that the authors make a clear reference that this is the Directive on environmental liability with regard to the prevention and remedying of environmental damage.³⁸

Page. 498, bullet point 1

“...Water damage – which is any damage that significantly adversely affects the ecological, chemical and/or quality status and/or ecological potential as defined in Directive 2000/60/EC, or the environmental status of the marine waters concerned as defined in Directive 2008/56/EC...”. We suggest that the authors make a clear reference to the titles of these Directives.

Page. 498, paragraph 3

“...The MCA is responsible for a National Contingency Plan...”. We suggest that the authors should provide a link to the National Contingency Plan.³⁹

5.13.6 Summary of findings and recommendations

Page. 500, paragraph 7

“E&P project-specific risk is associated with reservoir fluid type (e.g. heavy oil compared with condensate or gas), distance from sensitive coastal habitats and locations, and prevailing winds and currents”. We question why there is no reference in that statement to sensitive offshore habitats and species.

Page. 501, paragraph 5

“Oil spill response planning and capability, by the MCA, the oil industry and relevant authorities is generally consistent and as effective as practicable. It is clear that prevailing weather conditions will rarely facilitate offshore containment and recovery of surface oil (also that the emphasis should be on prevention rather than cure)”. We would query the necessity of the second sentence in the SEA context.

5.14 Ancillary development

We suggest including disturbance effects on marine birds from vessel traffic (passage and or related to e.g., pipelines and cables laying). Such disturbance can be significant for some species e.g., divers and scoters.

5.15 Overall spatial consideration

³⁸ [EUR-Lex - 32004L0035 - EN - EUR-Lex \(europa.eu\)](#)

³⁹ <https://www.gov.uk/government/publications/national-contingency-planncp>

5.15.3 Consideration of the evidence

5.15.3.3 Stage 2: defining potential constraints

Page. 519

There is also the possible designation of a suit of pilot HPMA's. Potential that this could constitute hard constraint for some sectors.

5.15.6 Regional Sea 2

Contra to the assertion on p530, the Hornsea 3 HRA could not rule out AEOI on the North Norfolk Sandbanks SAC.

5.15.9 Regional Sea 6

Page. 536, Figure 5.81

Clarity on what has generated the 'likely higher constraint levels' on this map would be welcome. We consider that all overlaps with all MPAs should be considered as having 'likely higher constraint levels', otherwise the map could prove rather misleading, even when read in conjunction with the text that precedes it and the subsequent maps.

5.16 Consideration of potential for cumulative impacts

5.16.3 Underwater noise

We agree that cumulative effects on marine mammals are likely. In addition to the areas referred to in this section where activity levels may be concentrated, we highlight the planned level of renewables activity in Regional Sea 4, focused around the Bristol Channel. While these projects are predominantly floating wind, the levels of noise associated with this type of infrastructure is unknown. In addition, all these projects will require geophysical surveys and may require piling or UXO clearance. While we consider disturbance from activities lasting less than 4-6 weeks to be temporary, potential risks of injury still need to be mitigated.

We agree that careful planning is required to reduce potential cumulative noise impacts. If Site Integrity Plans (SIP) are to continue to be part of this process, not only must the measures described be suitable, but the plans should be regularly reviewed to ensure they remain current and are mindful of other operations happening within the same season.

We have concerns that the SIP process for managing impacts on the SNS SAC will only be effective if a mechanism is devised to manage the potential for impacts from multiple SIPs. Whilst there has been initial progress it is still unclear whether SIP submission alone will prevent the noise thresholds from being exceeded. We consider that greater emphasis should be placed on noise abatement technologies as a means to reducing the likely in-combination impacts.

5.16.6 Physical presence

We agree the future licensing of offshore renewables will have the greatest spatial footprint and subsequently be the greatest source of impact for marine mammals. We also agree potential cumulative impacts to marine mammals may increase as array sizes increase and more arrays are planned, especially for wave and tidal developments which are limited to certain locations resulting in multiple projects in particular areas. This is a concern for marine mammals as the extent of risk associated with operating tidal devices are currently unknown.

P.563, paragraph 2

“The draft plan/programme is not spatially defined beyond the remit of leasing for reserved matters, and therefore it is challenging to attribute cumulative effects to the draft plan, as the receptors which could be affected are widely distributed. The potential for further incremental effects from offshore wind deployment that could arise from the draft plan, with those wind farms already operational, consented or which could be consented before the plan were adopted, may be significant, particularly in certain areas of the southern North Sea and Irish Sea.” These two sentences seem to contradict each other: we agree with the second of these.

5.16.12 Summary and conclusion

Page. 570

“Currently, predicting these kinds of interactions remains highly uncertain and quantitatively dubious. Instead, this should lead to further recommendations of regional scale targeted monitoring efforts to be able to have confidence in the assessment of trends for key ecosystem components.” Similar kinds of interactions as this statement refers to would apply to marine birds. We agree that such interactions remain highly uncertain and quantitatively dubious. However, we would expect to see an attempt to bring together the different contributors/stressors in a narrative way, based on available evidence, to at least point to likely interactions between stressors and some understanding of factors influencing severity of such stressors.

5.16.13 Potential for transboundary effects

Transboundary effects may be significant for mobile species such as marine birds, particularly in Regional Seas with considerable human activity in neighbouring jurisdictions (e.g., regional seas 2 and 6 for example).

5.17 Consideration of alternatives

5.17.2 Alternative 1: Not to proceed further licensing and/or leasing for one or more aspects of the draft plan/programme

In the table, ‘Consideration of sources of potentially significant effect’, we suggest that for collision risk to birds, for behavioural disturbance from physical presence of infrastructure, and for barriers to movement of birds, all effects a-e except for d, are red (moderate/high negative impact).

5.17.3 Alternative 2: To proceed with a leasing and licensing programme, and Alternative 3: To restrict the areas offered for leasing and licensing temporally or spatially

In the table, 'Consideration of sources of potentially significant effect', we suggest that for collision risk to birds, for behavioural disturbance from physical presence of infrastructure, and for barriers to movement of birds, nature of effect 2 is red (moderate/high negative impact).

Appendix E – OESEA4 Environmental report

Chapter 6: Recommendations and Monitoring

6.2 Spatial considerations

Page. 632, point 3

We would welcome an update of studies on cumulative navigational effects of offshore wind farms. We are becoming increasingly concerned about the in-combination disturbance effect from vessels on already displaced and disturbed bird populations.

6.3 Managing environmental risk

Page. 633, recommendation 8

We welcome and support the recommendation that further work be undertaken to define the magnitude of the collision risk mortality headroom that exists, to determine whether agreement can be reached on the level of this mortality as a baseline for further offshore wind development for Round 4 and beyond, and that the variation of consents by existing operators to reflect the as-built parameters of projects is encouraged to facilitate a legal basis to draw down the headroom.

Increasing the amount of post-construction monitoring that gathers empirical evidence on collisions (e.g., camera/radar) would be the most effective way of understanding the impacts of OWF on seabirds potentially sensitive to collision and may free up 'headroom'. However, this is proving difficult to secure as part of project-specific post-construction monitoring.

Page. 634, recommendation 9

It is not clear what is meant by the statement: “*At a wider MPA level such issues require policy level discussion to ensure that the UK’s conservation objectives can be met without unnecessarily constraining energy related or other economic activities.*”. We would suggest emphasising ‘unnecessarily’ and suggest this sentence is reworded to avoid implication/interpretation that conservation objectives should/could be adjusted to reduce constraints on energy, or other economic, activities.

We would be pleased to discuss BEISs concerns regarding the conservation advice for red-throated diver sites in more detail. We observe that the derogations within the Habitats Regulations reduce the likelihood that “*no further windfarm or other development will be possible in or immediately adjacent to such sites*” and note that two such sites (EA1N and EA2) have just been consented through use of the derogations.

Page. 634, recommendation 10

We agree that a comprehensive strategic review of post-consent wind farm monitoring is required to inform future environmental assessments.

Page. 635, recommendation 13

We welcome discussions with BEIS on how current noise mitigation measures can be improved for beaked whales.

Page. 636, recommendation 18

We agree cumulative effect assessments are challenging at all levels and would welcome guidance on the spectrum of uncertainty and the point beyond which it is considered conjectural. To help with this we recommend further development of existing cumulative assessment and management frameworks.

6.4 Improving the marine management information base

The impacts of offshore wind on migratory bats remains unknown, and evidence gathering regarding the extent to which this is an issue of concern (and if it is, whether mitigation is available) would be welcomed.

Page. 636, recommendation 20

Under Phase 1 of the POSEIDON project, existing seabird data for offshore areas is being collated and acquired, this includes data currently held under Marine Ecosystems Research Programme (MERP). Existing data will therefore be incorporated in the mapping and modelling planned under Phase 5 (2025). Informed by collation of existing data, collection of new seabird data in offshore areas under POSEIDON will prioritise areas with data gaps. Three survey campaigns are planned, starting in autumn 2022 and running during 2023 and 2024.

Page. 637, recommendation 21

We agree improved understanding of the ecology and distribution of beaked whales is vital should further development in deeper waters be required. In this area, baleen and sperm whales are also abundant and improved understanding is key to any future developments.

Page. 637, recommendation 22

We agree improved understanding of harbour porpoise ecology is needed, in particular how they use areas designated for their protection, and of the links between impacts to prey and harbour porpoise. Long-term monitoring plans should be implemented.

Page. 637, recommendation 23

We agree further evidence is needed to understand how marine mammals and their prey respond to noise although question the assumption that noise sources are well characterised. For example, there is limited knowledge on the sound outputs of SBPs and the proportion of high frequency noise emitted by airguns is unclear.

Page. 637, recommendation 24

We advise that the authors need to clarify whether they refer to the bivalve species “*Arctica islandica*”. This species is included in the OSPAR List of Threatened and/or declining species and habitats.⁴⁰

Page. 638, recommendation 27

We agree there is currently little information on interactions between marine mammals and submerged wave and tidal devices. We welcome the recommendation that small arrays undertake monitoring to inform this but highlight it cannot be assumed this information can be transferred to larger developments, other locations, or different species than those observed in the study area. A phased deployment approach at larger projects with associated monitoring may be beneficial, as at the Morlais tidal development. We welcome a strategic and coordinated approach to any research and agree results should be made publicly available.

Page. 638, recommendation 29

In addition to the databases detailed, we highlight the Joint Cetacean Data Programme⁴¹ (JCDP) and request developers are encouraged to submit marine mammal data (particularly baseline data) to the database. Standardisation of data is a key step when collating/comparing data from different projects and resources are provided to facilitate this⁴². We recommend this is considered at the start of project development so it can be incorporated into baseline surveys.

POSEIDON also seeks to collate, appraise, and acquire existing marine mammal, seabird and benthic ecosystem datasets to inform prioritization of areas for new data collection and the sensitivity mapping and modelling tools produced through the project. Data collation will include existing data collected by offshore renewables and industry site surveys. The final sensitivity mapping and modelling tools will be produced in 2025 and widely shared to inform future consenting processes in particular.

6.5 Best practice/mitigation

Page. 638, recommendation 30

We suggest replacing “...*realistic levels of impacts*...” with “...*realistic worst-case levels of impacts*...”.

Page. 639, recommendation 31

We would welcome strategic level research focus on compensation for sandbank and subtidal biogenic reefs.

⁴⁰ <https://www.ospar.org/work-areas/bdc/species-habitats/list-of-threatened-declining-species-habitats/invertebrates/ocean-quahog>.

⁴¹ Joint Cetacean Data Programme | JNCC - Adviser to Government on Nature Conservation

⁴² JCDP Resources | JNCC - Adviser to Government on Nature Conservation

We would welcome the creation of a national database to record the area and location of anthropogenic hard substrate deposition, and removal.

Page. 639, recommendation 32

Natural England have recently published a Commissioned report Scour and Cable Protection Decommissioning Study - NECR403.⁴³

The aim of the study has been to complete a desk-based study to inform an evidence gap in relation to the feasibility of, and options for, removal of scour prevention and cable protection upon decommissioning of offshore wind farms and to identify potential impacts to marine habitats.

The report identified scour and cable protection types commonly used in the marine environment, assesses removal options, degradation resistance, current ease of removal and availability of future technologies to provide an overall ranking for each type. Rock bags would be the preferred protection type followed by concrete mattresses, grout bags, fringed mattresses, bitumen mattresses, with rock dump being the least preferred method.

A review of 111 Oil and Gas decommissioning plans, which included scour protection systems, was conducted, the scour and cable protection type and final status (left in place, partial removal, total removal) was presented.

For each scour and cable protection type the various decommissioning methods were considered including leave in situ, removal by divers, ROV dredgers, rock removal tool, trailing suction hopper dredge, backhoe dredge, crane lift, subsea grapples and lifting baskets, speed loaders, wet store systems, and mass flow excavators. The positives, risks, limitations, and environmental implications for each decommissioning option were assessed to provide an overall (very good to very poor) grade for each method.

Quantitative and qualitative evidence was gathered from the renewables and oil and gas sectors on the current ability to decommission scour prevention and cable protection. Input was collated from suppliers and contractors relating to current best practice, possible future improvements and recommendations that could lead to improving outcomes.

In areas with vulnerable and irreplaceable habitat such as maerl beds, cold water corals and Chalk Reef we advise that developers need to demonstrate that they have adhered to the avoid, reduce, mitigate hierarchy. Especially as with regards to the habitats mentioned where no known methods for compensation are known or have been demonstrated to be successful.

Page. 639, recommendation 33

In areas hosting cold-water coral reefs or other vulnerable habitats physically damaging activities should be avoided considering the extremely slow (if any) recovery of these organisms.

⁴³ [Scour and Cable Protection Decommissioning Study - NECR403 \(naturalengland.org.uk\)](https://naturalengland.org.uk)

Page. 639, recommendation 34

We welcome the consideration of strategic mitigation and would support discussion of sand eel fisheries areas at a policy level.

Page. 639, recommendation 35

“A number of large marine protected areas established for seabed features such as sandbanks are judged to be in unfavourable conservation status. Such sites typically overlap with areas with OWF development potential. The conservation objectives for such MPAs generally advise a restore objective and note “Our confidence in this objective would be improved with longer term monitoring and access to better information on the activities taking place within the site.”” In the context of the energy transition towards net zero by 2050 and to avoid potentially unwarranted precaution, it is recommended that a programme of strategic investigations is initiated for relevant MPAs to provide the necessary evidence to inform consenting advice and decisions. Such evidence would also allow management and mitigation efforts to focus on the more damaging pressures affecting the sites.

Page. 640, recommendation 37

We agree the preferred approach for UXO clearance are methods that result in low noise.

6.6 Monitoring

6.6.2 Effects monitoring

Research and monitoring of the effects of noise on marine mammals should be better coordinated and strategic. A good example is that of the Aggregates Levy Sustainability Fund and associated coordination, which have provided funding and direction for work on understanding and mitigating effects of that industry. Another example is the model of the Regional Advisory Groups in Scotland, which have proved successful in the efficient use of resources to complete valuable research on the effects of offshore wind farms on marine species.

Appendix F – Appendix 1a.2: Benthos

A1a.2.2 UK context

All regional sea sections:

As part of the evidence base and JNCCs review of MPA management, surveys have been undertaken at numerous MPAs in each of the biogeographic regions to strengthen site understanding and monitor the condition of the sites. See footnote 36 for survey and monitoring reports ⁴⁴.

A1a.2.4 Features of Regional Sea 1

Sabellaria spinulosa has been identified in the Moray Firth in distinctive formations called 'bommies' ⁴⁵. The report referenced in footnote 37 does not include any reference to the presence of this habitat in this Regional Sea and we advise this is included for completeness.

A1a.2.5 Features of Regional Sea 2

Nearshore habitats and species

There is a spelling mistake for the MPA Kentish Knock East MCZ in paragraph 5, this should be updated from "*Kentish Know East MCZ*" to the above.

Biogenic habitats

The report states "*Whether absence/reduction in area is a result of damage to the reef structure (e.g., by bottom trawling) or whether such reefs are naturally ephemeral is not fully understood*". However, it is known that *Sabellaria spinulosa* has an ephemeral nature, what is unknown is whether the reduced reef density is a result of anthropogenic impacts or the reefs naturally moving location. Therefore, we advise that the wording of the ephemeral nature is reworded to "whether such reefs have naturally relocated due to the ephemeral nature of the feature." Further information on this can be found in the conservation advice package for North Norfolk Sandbanks and Saturn reef SAC. ⁴⁶

A1a.2.4 and A1a.2.5

Regions 1 and 2 have a high density of oil and gas activity. As surveys are a key part of the permitting process, it would be good to establish whether any contact been made with industry (particularly oil and gas) to access and use their data in this assessment?

⁴⁴ <https://jncc.gov.uk/our-work/mpa-monitoring-survey-reports/>

⁴⁵ <https://data.marine.gov.scot/dataset/status-sabellaria-spinulosa-reef-moray-firth-and-aberdeenshire-coasts-and-guidance#:~:text=The%20new%20sub%2Dtype%20was,fairly%20featureless%20soft%20bottom%20habitat>

⁴⁶ [North Norfolk Sandbanks and Saturn Reef MPA – Conservation Advice | JNCC Resource Hub](#)

A1a.2.9 Features of Regional Sea 6

Offshore habitats and species

Three species names include a question mark before the name, this should be amended to remove the question mark.

When referencing the Celtic Trough, the sentence includes reference to Section A1a.2.9 though this could be reworded to state 'referred to in this section'.

JNCC undertook a survey at Pisces Reef Complex MPA in 2016. Information from the survey⁴⁷ and the recently published monitoring report⁴⁸ are available in the links provided.

A1a.2.11 Features of Regional Sea 8

Where surveys have been undertaken in sites, we would advise that this information is noted in the report to provide additional information, with examples provided below:

- Further information on Geikie Slide and Hebridean Slope NCMPA can be found on the amended version of the survey report on the JNCC website relating to the 2016 survey completed by JNCC and Marine Scotland Science, which took place in the site ⁴⁹.
- Further information on 2018 survey completed by JNCC and Marine Scotland Science which took place in Wyville Thomson Ridge SAC can be found on the JNCC website ⁵⁰. The monitoring report for this survey will be published in due course.
- Further information on 2019 survey completed by JNCC and Marine Scotland Science which took place in West Shetland Shelf NCMPA can be found on the JNCC website ⁵¹. The monitoring report for this survey will be published in due course.

A1a.2.13 Features of Regional Seas 10 and 11

Banks and seamounts

Anton Dohrn Seamount SAC contains the three sub-types of Annex I reef habitat and is the only seamount to contain this in UK waters, therefore we advise that this is included in the document.

Biogenic habitats

It is unclear whether the text within this section covers all Regional Seas as is it included in A1a.2.13? However, as it discusses species not just mentioned in Regional Seas 10 and 11, it should be included as its own section or added elsewhere in the document as its

⁴⁷ <https://hub.jncc.gov.uk/assets/af6670c7-c4b0-4ebc-a536-96b8adb78ac1>

⁴⁸ <https://hub.jncc.gov.uk/assets/4065f4d8-1e35-48c0-bc99-b7511034ca7e>

⁴⁹ <https://hub.jncc.gov.uk/assets/040a8b76-8aba-467e-b6b5-16d5a4d4b10c>

⁵⁰ <https://hub.jncc.gov.uk/assets/6b1576f1-2b10-45ed-9d91-e2ff4f8d7f9c>

⁵¹ <https://hub.jncc.gov.uk/assets/6b1576f1-2b10-45ed-9d91-e2ff4f8d7f9c>

currently location causes confusion particularly when seagrass beds are discussed which are not present in Region Seas 10 and 11.

As mentioned for Regional Sea 1, *Sabellaria spinulosa* has been identified in the Moray Firth in distinctive formations called 'bommies' referred to in the following paper ⁵². The report mentioned the presence of this habitat off Peterhead but nothing about the unique structure it creates, and the differences present in these 'bommies' compared to reef elsewhere in the UK.

A1a.2.15 Environmental issues

Fishing

As the report mentioned protections for fishing activities in other sites, the MMO have now confirmed there will be byelaws in place by the 13 June 2022 with full site closures to bottom towed gears for Dogger Bank SAC and South Dorset MCZ and partial closures to bottom towed gears for mapped extent of features in Inner Dowsing, Race Bank and North Ridge SAC and The Canyons MCZ.⁵³

We advise that this information is included for consistency purposes.

⁵² <https://data.marine.gov.scot/dataset/status-sabellaria-spinulosa-reef-moray-firth-and-aberdeenshire-coasts-and-guidance#:~:text=The%20new%20sub%2Dtype%20was,fairly%20featureless%20soft%20bottom%20habitat>

⁵³ Information on this announcement can be found here:
<https://www.gov.uk/government/news/government-uses-brexit-freedoms-to-protect-our-seas>.

Appendix G – Appendix 1a.4: Fish and Shellfish

A1a.4.10.2 Overfishing

Page. A1a.4.3, paragraph 4

“Bailey et al. (2009) showed that fish abundance recorded from depths of 800-2,500m in the Porcupine Seabight and Abyssal Plain (south-west of Ireland), has fallen significantly since 1977, possibly as a result of impacts on the species in shallower waters resulting in declines in the deeper parts of the range.”

We note that the end of this sentence seems a little speculative. We suggest removing *“possibly as a result of impacts on the species in shallower waters resulting in declines in the deeper parts of the range”*.

Appendix H – Appendix 1a.5: Birds

This appendix reviews a range of impacts and level of impacts to seabirds (e.g. bycatch, mammalian predators), and mentions mechanisms of impact from offshore wind but makes no attempt to describe a baseline for current level of impact from renewables. The sensitivities of different species to various impacts are not mentioned. Distribution of some species through utilisation distribution maps are described. There is no mention of or use of Biologically Defined Minimum Population Scales (BDMPS) to determine regional populations.

Table A1a.5.4

Note that we advise the use of foraging ranges for common guillemot and razorbill as stated within appendix 1 of Woodward et al 2019, which excludes data from Fair Isle where foraging range may have been unusually high as a result of reduced prey availability during the study year:

- Common guillemot (Mean max +1SD: 55.5km ± 39.7km)
- Razorbill (Mean max +1SD: 73.8km ± 48.4km)

Table A1a.5.29

It is not clear why a sub-set of counts of kittiwakes from SPAs have been presented in this table.

Appendix I – Appendix 1a.8: Marine Mammals

It seems a shame that the most suitable figures for displaying cetacean distribution at a UK level is Reid et al. (2003), as the data in these figures are at least 25 years old. Although it is a valuable resource, it does not fully reflect our current understanding of the distribution of certain species, which is acknowledged in the report. However, if a reader was to simplistically look at the figures alone, they may not get the correct picture of current cetacean distribution. It seems that perhaps an opportunity has been missed to update these figures at the UK-scale in the last 20 years. Or that updates to them have too many underlying data assumptions or complexities and so have not actually improved upon Reid et al. (2003) when it comes to displaying UK-wide cetacean distribution data.

Figure A1a.8.2

It is not clear from the legend that the black outlined, numbered areas are the regional seas - this should be clarified.

The note to this figure says that SACs in other states are presented if they have a global assessment for harbour porpoise of A or B. It is not clear why this threshold has been applied to other states. Our understanding is that the 'grade' of the harbour porpoise SAC is typically based on the population of the site (which can be A-D), rather than the global assessment. This is exemplified by the JNCC's webpage on harbour porpoise <https://sac.jncc.gov.uk/species/S1351/>. If it was based on global assessment, then technically the Skerries and Causeway SAC is a "C" level for this and so would not be included.

Table A1a.8.1

When comparing the table to the Inter-Agency Marine Mammal Working Group (IAMMWG) (2021)⁵⁴, there appears to be a typo in one of the numbers. The 95% Confidence Interval for the OCSW MU upper value should be 17,814.

Figure A1a.8.11

It is unclear what the graph in the figure is presenting - could this be elaborated on?

A1a.8.3 UK context: Seal distribution and abundance

The most recent publicly available Special Committee on Seals (SCOS) Report was published in 2020⁵⁵. Statements that reference the SCOS Report(s) should be updated to reflect the latest report and values therein, e.g., population estimates, where possible.

A1a.8.5 Feeding ecology

⁵⁴ IAMMWG (2021). Updated abundance estimates for cetacean Management Units in UK waters. JNCC Report No. 680, JNCC Peterborough, ISSN 0963-8091. <https://data.jncc.gov.uk/data/3a401204-aa46-43c8-85b8-5ae42cdd7ff3/JNCC-Report-680-FINAL-WEB.pdf>

⁵⁵ SCOS (2020). Scientific Advice on Matters Related to the Management of Seal Populations: 2020 [SCOS-2020.pdf](https://www.st-andrews.ac.uk/scos-2020.pdf) ([st-andrews.ac.uk](https://www.st-andrews.ac.uk))

A1a.8.5.3 Other toothed cetaceans

A description of the diet of Atlantic white-sided dolphin is missing from this section.

A1a.8.6 Features of Regional Sea 1

It would be beneficial to provide a cross-reference to where the reader can find a figure showing the extent of Regional Sea 1 (and the regional sea areas as a whole) - or cross reference Figure A1a.8.2 (once the regional seas have been added to the legend).

It would be beneficial to present the marine mammal MPAs in each Regional Sea, as MPAs could be considered a 'feature' of the Regional Sea. This could complement the information provided in A1a.8.17.3. At present, there is inconsistent inclusion of MPAs i.e., some MPAs mentioned in the text under regional seas but not others.

There is preliminary photo-identification evidence of matches between bottlenose dolphins observed in the Moray Firth and along the north-east English coast, as presented in a master's thesis by Aynsley (2017)⁵⁶. This preliminary evidence could be acknowledged, alongside the further work being undertaken by the Citizen Fins project.

With respect to offshore observations of bottlenose dolphin - these observations could be of the Greater North Sea Management Unit population (which has recently been given a population estimate by IAMMWG (2021)), rather than necessarily the Coastal East Scotland Management Unit population.

It would be beneficial to mention the population of harbour seal in the Tees as it is the main English population in Regional Sea 1 and is a designated site (Teemouth and Cleveland Coast SSSI).

A1a.8.7 Features of Regional Sea 2

Could it be clarified if Regional Sea 2 overlaps five SCANS-III survey blocks (as stated in the text) or three (as only L, N and O are listed)?

A1a.8.8 Features of Regional Sea 3

There is no mention of white-beaked dolphin in this section though this species has previously been recorded in Lyme Bay in particular. This species should therefore be included in this paragraph.

The findings from S. Corr's master's thesis on the southwest population of bottlenose dolphin should be included in here. Corr found an increase in sightings in summer and autumn (though likely linked to effort), and an eastward shift in the areas of highest sightings. Also, information about the potentially semi-resident population. It is not clear if the seasonal movements described in the SEA have been observed more recently e.g., by Corr. This

⁵⁶ Aynsley, C. (2017). *Bottlenose dolphins (Tursiops truncatus) in north-east England: A preliminary investigation into a population beyond the southern extreme of its range*. Newcastle University. [aysnsley_thesis.pdf \(crru.org.uk\)](https://crru.org.uk/aysnsley_thesis.pdf)

reference can also be used to characterise the presence in Regional Seas 4&5 (contact Natural England for reference).

A1a.8.9 Features of Regional Sea 4/5

It may be worth noting that the SCANS-III Blocks that overlap Regional Seas 4&5 are Blocks B, C, and D, and that Block C had no sightings of common dolphin, and that most of the sightings in Block B (which result in its high density estimate) do not actually overlap Regional Seas 4&5. Such similar info has been provided for harbour porpoise but should be mentioned for common dolphin too.

Based on Carter et al. (2020), it appears that at-sea distribution of grey seals is also higher around Lundy and the north Cornwall coast. This should be mentioned, particularly as this is an area earmarked for floating wind development.

A1a.8.12 Features of Regional Sea 8

The presence of long-finned pilot whale has not been elaborated on beyond their mention in the first paragraph. Some information on their distribution should be presented.

Could the author check that the NCMPAs are still only 'proposed' sites? We were under the impression that they had been formally designated in 2020.

A1a.8.13 Features of Regional Sea 9

The presence of killer whale has not been elaborated on beyond their mention in the first paragraph. Some information on their distribution should be presented.

A1a.8.16 Environmental issues

A1a.8.16.4 Bycatch, paragraph 1

We consider that grey seal is a third species of concern from bycatch and so should be mentioned in the first paragraph. For example, based on information from ICES, bycatch of grey seal in this region is above the threshold for a detrimental population effect:

<https://www.ices.dk/advice/ESD/Pages/Celtic-Sea-Pressure-Selective-extraction-of-species.aspx>.

More recent information could be included in this section on grey seal bycatch in this region (We believe NRW have commissioned research on this topic). Also, given that the number of harbour porpoise bycaught in the North Sea and Celtic Sea and Western Channel are fairly similar, we consider that bycatch in Region 2 is also of concern.

A1a.8.16.4 Bycatch, paragraph 6

The text states that "*further review of this regulation is expected by end 2015*". Has there been a subsequent update/review? This should be amended accordingly.

It would be beneficial to include the recent changes in legislation regarding shooting of seals for fisheries control. This legislation change should also be included in Section A1a.8.17.2.

A1a.8.17 Conservation frameworks

A1a.8.17.2 United Kingdom

It is also an offence to intentionally or recklessly disturb a dolphin or whale (Cetacean) in England and Wales under WCA 1981 (see Section 9 4A). This should be included.

A1a.8.17.2 United Kingdom, paragraph 2

The most recent JNCC guidelines relevant to seismic are those for geophysical surveys published in 2017. The reference to the 2010 guidelines should be updated. Note that this is also applicable to Environmental Report (section 5.3.4).

A1a.8.17.3 Marine Protected Areas

SSSIs for seals should also be included, even if they are not fully marine.

Appendix J – Appendix 1c: Landscape and seascape

A1c.2 UK context, paragraph 1

The first sentence of the paragraph fails to note the value of the physical aspects of designated landscape and merely references the aesthetics. It needs to reflect the importance of the physical fabric of the designated landscape and its setting – it's not just the view!

The final sentence mixes up statutory designated landscapes (AONBs and NPs) with local Landscape Designations which have no statutory purpose or protection. The Statutory protection afforded to AONBs and NPs needs to be made clear.

A1c.3 Landscape designations and classifications

A1c.3.1 Areas of outstanding natural beauty (AONB), paragraph 1

The first and second sentences use the word 'preserve'. This is incorrect. In the context of this sentence the word 'protect' should be employed. The rest of the sentence is also incorrect and needs to be rewritten to reflect the statutory purposes of AONBs. They share the same statutory purpose as national parks and this needs to be stated in the text. Please use the correct policy phrases.

Last but one sentence. Duty of regard requires relevant authorities to have regard to the natural beauty of the designation and not nature conservation as stated in the text.

A1c.6 Features of Regional Sea, Table A1c.2

Flamborough Head HC falls in both Regional Sea area 1 and 2. The text should reflect this.

A1c.8 Features of Regional Sea 4, Table A1c.4

Isles of Scilly AONB is missing from the table.

Appendix K – Appendix 1h: Other users

A1h.17 Fisheries

Page. A1h.70, paragraph 3

The information in this paragraph is interesting to see but it may be confusing for a general reader following the preceding paragraph without clarifying that a significant proportion of the fish caught in UK EEZ is landed in non-UK ports. This data is not routinely collected by the Marine Management Organisation (MMO) or Scottish Government. Official statistics only exist for those fish landed into the UK.

Page. A1h.72, figure A1h.29

We suggest that it would be useful to also include the equivalent value of landings figure here. There are several ports that may have small numbers of very large vessels, employing more fishermen and landing significantly more catch, i.e., the number of vessels does not equate to the degree of effort in the fleet or the economic significance of the sector.

Page. A1h.74, paragraph 2

The text refers to three Regional Advisory Councils (RACs) including the North Sea RAC, the North Western Waters RAC, and the South Western Waters RAC. These have not been known as RACs for several years now. They are just referred to as Advisory Councils (ACs). We suggest amending the text.

“In Scotland, fisheries management is controlled by Marine Scotland, who work in conjunction with five Regional Inshore Fisheries Groups (RIFGs)”. We highlight that there are six RIFGs, not five as stated here. The six RIFGs include: North & East Coast, Orkney, Outer Hebrides, Shetland Shellfish, West Coast, National.

Page. A1h.76, paragraph 2

“Total fishing effort is generally greater among vessels using mobile gears.” It is unclear what evidence this is based on? It is very difficult to know how much static gear effort there is due to a lack of data on the amount of static gear deployed and the associated soak times. We suggest it would be fairer to say that we have much better data on mobile gear effort.

Page. A1h.88, paragraph 2

“The dominance of bottom trawls in UK fisheries can be seen in Table A1h.12 and Figure A1h.40, with traps and dredges (predominantly for shellfish) also important.”. This is confusing because the figures suggest that traps are the most dominant, not trawls.

Page. A1h.92, paragraph 2

“The region was heavily fished by foreign vessels which are not included in these figures.”. We suggest this to be an unvalidated statement. Although there is some non-UK vessel activity in RS1 (Danes and Norwegians), the vast majority of non-UK effort is concentrated in the Southern North Sea, Channel and Western Approaches, and Celtic and Irish Seas.

Page. A1h.102, paragraph 2

“The distribution of fishing effort in the Irish Sea, as depicted by VMS data, is particularly great in the north of the region (Figure A1h.32)”. We suggest clarifying that this is large vessel effort (>12m), given that VMS is being used to support the statement.

Page. A1h.103, paragraph 2

“There is a significant high value trap fishery for wrasse species which are used for lice control in salmon farms.”. Given the underregulated nature of this fishery, we are not sure of its current status. However, this fishery has migrated right down the west coast of the UK and is not restricted to just RS7. There is likely to be a readily findable reference if needed.

Page. A1h.106, paragraph 2

“The VMS data indicates a high level of fishing effort throughout this region (Figure A1h.32).”. We are not sure that fishing intensity is high across the region. We suggest it would be better to say that fishing is highly concentrated in specific areas in the region. It is probably one of the least fished on-shelf regions in the UK EEZ.

Page. A1h.107, paragraph 2

“Vessels target deep water species such as blue ling, roundnose grenadier and black scabbardfish around the margins of the Rockall Trough, while French vessels operate a small fishery for deep water sharks (Gordon 2006).”. There are now deep-water trawl restrictions which have been in place since 2016. These restrictions have limited many deep-water fisheries in the region. We suggest that it would be worth checking this text and possibly referencing the new regulations.

The paragraph states that *“French vessels operate a small fishery for deep water sharks (Gordon 2006).”*. We would like to question whether this fishery still exists?

Page. A1h.112, paragraph 1

“The 25 Year Environment Plan notes that an ecosystem approach to fisheries management will account for, and seek to minimise, impacts on non-commercial species and the marine environment generally, including through technical conservation measures.”. This would seem a good point in the document to discuss the Fisheries Act and its eight constituent objectives. One of them, the ecosystem objective, is designed to consider some of the wider ecosystem effects of fishing. The Joint Fisheries Statement will lay out how admins propose meeting the objectives in the Act and Fisheries Management Plans will be the means to implement the objectives.

Page. A1h.112, paragraph 2

“Draft bylaws propose to prohibit all bottom towed fishing, including demersal and semi-pelagic trawls, demersal seines and dredges throughout the Dogger Bank SAC, South Dorset MCZ and in specified areas of The Canyons MCZ, including small buffer areas around the sites”. We highlight that these bylaws are no longer in draft stage. These are now

four official bylaws which come into force 13 June 2022. Additionally, this sentence should also include Inner Dowsing, Race Bank and North Ridge SAC⁵⁷.

Page. A1h.113, paragraph 1

“acoustic “pingers” to deter predatory marine mammals”. We advise the removal of the word “predatory”. It would also deter marine mammals in transit.

“A decrease in bycatch will increase the efficiency of fishing, resulting in fewer discards and allowing a reduction in fishing effort.”. We question how a reduction in bycatch will result in a decrease in fishing effort? We propose this requires more explanation.

“This in turn, is likely to lead to more generous quotas being awarded.”. We highlight that this is very speculative and would suggest the removal of the sentence.

Page. A1h.114, paragraph 2

“Bycatch may also include larger animals; trawl nets catch and drown cetaceans and seals which are attracted by the shoaling fish”. Based on the bycatch monitoring programme, bycatch of marine mammals is very limited in demersal trawl fisheries. There have been some issues with pelagic pair trawl fisheries in specific regions but generally it is static gears (nets) that represent the greatest marine mammal bycatch risk.

Page. A1h.114, paragraph 3

“Bottom trawling is a destructive method, destroying fragile habitats and organisms and crushing benthic invertebrates such as crustaceans, molluscs and echinoderms”. This is a very general sentence and needs to consider the level of impact depending on the type of bottom trawling. We would change “is” to “can be” here as the level of impact depends on the conditions in the area, communities and sediment type.

Page. A1h.115, paragraph 1

“an electric pulse replaces the dragged tickler chain (van Marlen et al. 2014) or the hydraulic jet elevator, which uses a system of water jets to dislodge shellfish from the seabed, in place of dredges, will reduce the damage caused by these fisheries as they become more widespread.”. We would like to highlight that pulse trawling is banned in UK waters.

⁵⁷ See: <https://www.gov.uk/government/publications/the-inner-dowsing-race-bank-and-north-ridge-special-area-of-conservation-specified-areas-prohibited-fishing-gears-byelaw-2022>

Appendix L – Appendix 1j: Conservation

A1j.1 Introduction

A1j.1.1 Special Protection Areas (SPA) and Special Areas of Conservation (SAC)

Tables relating to SACs and SPAs in all Regional Seas:

The order of sites in these tables are mixed, therefore we recommend for ease of reading and reference that the SACs and SPAs listed are included in alphabetical order.

There are multiple entries in many of the tables which include (SAC) at the end of the site name. As this is not included for any other SACs, we advise this is either removed or the inclusion of this is explained in a footnote in the table of why only some SACs include this in their names.

A1j.1.2 Marine Protected Areas (MPAs) and Marine Conservation Zones (MCZs)

The layout of SACs and SPAs is individual tables for each of the Regional Seas, however for NCMPAs and MCZs, there is one table which then separates into the different Regional Seas. As a suggestion, keeping the formatting of the tables for the protected sites the same would be appropriate for consistency.

The same comment applies here in relation to the order of sites in the tables, we suggest these are included alphabetically.

For all descriptions, we note the majority start with lower case letters, however a few included capitals for the first word. We advise this is amended so the first letter of all features is capitalised. The capitalisation of numerous features is inconsistent within the tables and should be updated to reflect how they are included in the site designation documentation.

Table A1j.21 Marine Conservation Zones and National Conservation Marine Protected Areas

There are numerous errors in Table A1j.21 which have been listed below with corrections suggested or included.

In the table caption “*National Conservation Marine Protected Areas*” should be “**Nature Conservation Marine Protected Areas**”.

The description for protected features at the East of Gannet and Montrose Fields NCMPA are incorrect and should only include offshore deep-sea muds and ocean quahog aggregations.⁵⁸ This should be updated to reflect the correct designated features of the site.

The description for Norwegian Boundary Sediment Plain NCMPA should be updated to ocean quahog aggregations.

⁵⁸ This is detailed here: <https://jncc.gov.uk/our-work/east-of-gannet-and-montrose-fields-mpa/>.

The description for ocean quahogs in the Fulmar MCZ, North East of Farnes Deep MCZ, Farnes East MCZ entries should be updated from *Arctica islandica* aggregations to Ocean quahog (*Arctica islandica*).

The description for Holderness Offshore MCZ should be updated from ocean quahog to ocean quahog (*Arctica islandica*).

The description of Markham's Triangle MCZ should remove “*recover to favourable condition*” which has been included as an error.

High energy circalittoral rock should be added to the description of South Dorset MCZ as this protected feature is missing.

The description for Offshore Brighton MCZ should be updated to only include High energy circalittoral rock, Subtidal coarse sediment and Subtidal mixed sediments as some features currently included are incorrect.

The description for East of Haig Fras MCZ should be updated to only include High energy circalittoral rock, Moderate energy circalittoral rock, Subtidal coarse sediment, Subtidal sand, Subtidal mud, Sea-pen and burrowing megafauna communities and Fan mussel (*Atrina fragilis*).

In the description for South-West Deeps (West) MCZ and South of the Isles of Scilly MCZ, the fan mussel entries should include (*Atrina fragilis*) at the end.

The features designated under the Faroe-Shetland Sponge Belt NCMPS are Deep-sea sponge aggregations, Offshore subtidal sands and gravels, Ocean quahog aggregations, Continental slope, Continental slope channels, iceberg plough marks, prograding wedges and slide deposits representative of the West Shetland Margin paleo-depositional system Key Geodiversity Area, geological and geomorphological: Sand wave fields and sediment wave fields representative of the West Shetland Margin contourite deposits Key Geodiversity Area. Therefore the description included should be updated to reflect this.

The description in Hatton-Rockall Basin NCMPS which includes marine geomorphology of the Scottish deep ocean seabed should be replaced with Sediment drifts and polygonal faults representative of Hatton Bank (and adjacent sea floor) Key Geodiversity Area.

Appendix M – Workshop Response (Natural England)

Thank you for the opportunity to attend the workshop on 11 February, and to respond to the Questionnaire. Please see our responses to the questionnaire below:

1. Are there emerging issues or new sources of potentially significant environmental effects from the technologies covered in the current draft plan?

Navigation effects - Natural England would welcome further evidence gathering on cumulative navigational effects from marine activities considered within the SEA. Natural England are increasingly becoming concerned in relation to in combination disturbance effect from vessels during construction and operation of developments on already displaced and disturbed bird populations. We would welcome a strategic assessment of potential impacts and mitigation methods or development of industry protocols to address impacts.

Hydrocarbon gas storage- The use of non-hydrocarbon reservoirs (e.g., salt caverns) which require excavation may have physical/chemical impact pathways related to water quality impacts and increased salinity as a result of brine extraction, which would be unique to this activity and maybe worth considering.

2. What do you view as key spatial constraints for the siting of major marine energy developments?

HPMA - The MPA network is likely to include Highly Marine Protected Areas in the near future. Defra intend to consult on a list of sites in May 2022. These sites will need to be considered within spatial planning for siting of major marine energy developments.

3. Are there sources of potentially significant environmental effects from the technologies covered in the current draft plan/programme which you feel are not fully covered by existing operational controls/permitting requirements?

Marine Mammals- Natural England's greatest concern with regards to marine mammals is significant disturbance from underwater noise, particularly cumulative noise from multiple projects. Specifically with regards to the Southern North Sea SAC, in-combination underwater noise impacts are managed through Site Integrity Plans (SIPs). We have several concerns with the SIP process, which we intend to share in a SIP position statement shortly). In particular, Natural England are concerned over the current way that SIPs are managed, including: the timing of SIP submission; managing multiple SIPs and other industries that may not require SIPs and/or have short lead-in times; transparency over projects occurring within the same SAC area/temporal scale and effective communication channels between individual projects required to coordinate SIPs effectively. We understand that there is progress being made on these issues: for example, by the recent introduction of a Marine Licence condition to engage with other projects occurring at the same time; and that there are plans to develop an externally facing part to the Marine Noise Registry which will address some of these points re managing in-combination underwater noise. However, until an externally facing register is in place which can be interrogated by stakeholders in real time, it will be difficult for MMO as regulators, and SNCBs as advisers, to monitor and

manage SIP mitigation measures across several projects to ensure thresholds are not exceeded.

With regards to injury from underwater noise, we consider that there are established mitigation measures available to avoid the risk of significant effects on marine mammal populations from injury. However, as the pace of offshore development increases current management measures and mitigation may no longer be sufficient. Natural England strongly advise that offshore industries and developers give due consideration to the use of noise abatement technologies such as bubble curtains or alternative installation methods as a means to minimise in-combination impacts as a course of best practice.

Anthropogenic hard substrate- Natural England would welcome the creation of a national externally facing and interrogatable database to record the area and location of anthropogenic hard substrate deposition, and removal, associated with marine major development. This would facilitate assessment of impacts on protected features and a better understanding of ecosystem effects.

4. Are there additional practical mitigation techniques for sources of potentially significant environmental effects from the technologies covered in the current draft plan/programme which you would like to draw to our attention?

Cable and Scour Protection -Additional mitigation measures could include requiring the use of scour and cable protection methods that have been proven to be removal able upon decommissioning, or further research into methods and technology development requirements to remove scour and cable protection with minimal environmental effects. Please see Natural England Commissioned Report for further information on this issue [Scour and Cable Protection Decommissioning Study - NECR403 \(nepubprod.appspot.com\)](#).

5. Are there recent (i.e., post scoping consultation) studies, reports, or other information which should be considered for the OESEA4 Environmental Report?

Recent advice and report publications by Natural England include:

- [Natural England's Approach to Offshore Wind: Our ambitions, aims and objectives - TIN181](#) (June 2021)
- [Offshore Wind Best Practice Advice \(2022\)](#) - External colleagues should email the neoffshorewindstrategicsolutions@naturalengland.org.uk mailbox to request access (please allow up to three working days for requests to be approved). Or through our blog [Offshore wind – best practice advice to facilitate sustainable development - Natural England \(blog.gov.uk\)](#)
- The updated 'Joint SNCB Interim Displacement Advice Note' and it's annex, 'Interim Advice On The Treatment Of Displacement For Red-Throated Diver' have now been published on the JNCC resource hub (March, 2022). [Joint SNCB Interim Displacement Advice Note | JNCC Resource Hub](#)

- [Scour and Cable Protection Decommissioning Study - NECR403 \(nepubprod.appspot.com\)](https://nepubprod.appspot.com) (March 2022)

Future publications and research undertaken by Natural England are expected to include:

- Mc Arthur Green Commissioned Report 2022 Assessment of compensatory measures for impacts of offshore windfarms on seabirds - To be published on the Access to evidence portal in the next few weeks
- Natural England is currently completing a literature review of work on maximising the benefits of artificial habitats with Haskoning. The outputs from this should be published In May/June 2022.
- Natural England has commissioned a report from ORE Catapult investigating the potential of using offshore structures as platforms for environmental sensors. This work should be published in May/June 2022.
- Natural England has commissioned a report from NIRAS to recommend methods for estimating the scale of compensation which might be required for different future offshore wind generation scenarios. This work should be published in May/June 2022.
- POSEIDON - Planning Offshore Wind Strategic Environmental Impact Decisions

The POSEIDON project will conduct analysis to strengthen the knowledge base of the potential risks of developing wind farms on different environmental receptors, such as seabirds, marine mammals, marine landscapes and benthic seabed habitats. New and existing data on environmental sensitivities will be combined using existing web-based tools where possible, to provide a comprehensive environmental baseline. These tools will be used by marine managers, scientists, developers and all those with an interest in offshore wind to ensure that decisions on marine planning and project development can factor in environmental risk from the outset. This collaborative UK-wide project is being led by Natural England, with support from an advisory group comprising Cefas, JNCC, the MMO, Natural Resources Wales, NatureScot and Bangor University. The project began in January 2022 and is due to continue until 2025.

Red Throated Divers

Research is being carried out on the energetic costs of displacement physiological, energetic and demographic consequences of habitat loss and displacement but there is not yet a full understanding of what is happening [RTDE Project | JNCC - Adviser to Government on Nature Conservation](#). Research is also being carried out in other countries, notably in the German Bight. Natural England are currently preparing a position in relation to RTD, this is due for publication in June 2022.

Lesser Black Backed Gull

The approach to apportioning LBBG to a particular SPA will differ depending on the project and its distance from the relevant SPA. One thing we have learnt from GPS tracking of gulls

is that individuals behave differently from each other in the same colony, and therefore it may be difficult to make general assumptions about the behaviour of birds based on whether they are from a particular SPA. Whilst some studies have shown a proportion of individuals may forage inland, this can change during the chick rearing period, and some will switch to marine foraging. It is currently therefore not possible for Natural England to develop a Position statement on LBBG.

Bat Conservation Trust



[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

24thth May 2022

To the Department for Business, Energy and Industrial Strategy,

The Bat Conservation Trust (BCT) would like to thank-you for the opportunity to comment on the UK Offshore Energy Strategic Environmental Assessment 4 (OESEA) Report here [UK Offshore Energy Strategic Environmental Assessment 4 \(OESEA4\) - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/consultations/uk-offshore-energy-strategic-environmental-assessment-4). We would like to respond to the consultation specifically on the topic of bats and offshore wind.

BCT was formed in 1991; we are a dynamic, influential and growing national charity. Established by far-seeing individuals who recognised that the combination of challenges to the conservation of bats was unique, BCT is proud to be the leading non-governmental organization devoted solely to the conservation of bats and their environment. Our work represents the gold standard in bat conservation providing a lead for the rest of the world. We work to ensure that bat conservation is acknowledged as an integral part of sustainable development.

We note from the UK OESEA Report the following references to bats:

Pdf pages 17 & 132

'Small numbers of the Nathusius' pipistrelle bat occur seasonally over UK waters on migrations between the UK and mainland Europe.'

Pdf page 328-329

'Less has been done on the occurrence of bats in the offshore environment (on migration) and their potential interactions with renewable developments. Little is known about bat migration ecology, the number of individuals migrating over sea, and the risk of mortality from interactions with offshore wind turbines (Lagerveld et al. 2017). Research has shown bats are more frequently recorded offshore during migration (late March until June and from late August until October), with the most frequently encountered species over the North Sea being Nathusius' pipistrelle (Pipistrellus nathusii), but common pipistrelle P. pipistrellus, common noctule Nyctalus noctula, Leisler's bat N. leisleri, particolored bat Vespertilio murinus, Northern bat Eptesicus nilssonii, and Serotine bat E. serotinus are also recorded (Boshamer et al. 2008, Lagerveld et al. 2012, Hüppop et al 2016, Hüppop et al 2019). Whilst it is known that bats migrate over the North Sea, it is unknown whether they migrate across in a broad front, or show spatially distinct patterns (Lagerveld et al. 2017). The few studies to date have typically resulted in small datasets and have shown contradictory results, with virtually no studies on the spatial and temporal occurrence of bats offshore.'

Pdf page 625 & 659

The evaluation tables in the UK OESEA Report acknowledge there is a potential minor negative impact on bats from offshore wind farms and also that there is uncertainty and little information to quantify risk.

[REDACTED]
enquiries@bats.org.uk www.bats.org.uk

Also relevant is pdf page 50

'The conclusion of the SEA is that alternative 3 to the draft plan/programme is the preferred option. In addition to the high level restrictions associated with this alternative, a number of recommendations are made relating to the management of spatial use and environmental risk, and where there are data gaps for which recommendations are made to prioritise future research.'

We were interested and pleased to read Appendix 1 A1a.7 of the report on bats, which is a reasonable summary of the available knowledge and situation, although please see our comments below.

With reference to the OESEA report we would like to raise the following points:

- We do not have enough information to say that only small numbers of bats cross the North Sea during migration. Limpens *et al.* (2017) describe an approach to estimating migratory populations in the southern North Sea, stating that offshore wind turbines may pose a risk to these bats. Their model produces a preliminary estimate for bats crossing the Southern North Sea of roughly 40,000 individuals (with a range between 100 and 1,000,000 individuals).
- We are interested in the comment that the few studies to date have produced contradictory results, with virtually no studies on the spatial or temporal occurrence of bats offshore. We would contest this, as some of the Dutch and Belgian work describes where bats have been recorded offshore and at what time of year they have been recorded. The Dutch work goes on to describe the environmental conditions in which bats can be found offshore, with some detail in a paper by Lagerveld *et al.* (2021), with the following excerpt taken from the abstract: *'The species' migration is strongest in early September, with east-northeasterly tailwinds, wind speeds < 5 m/s, and temperatures > 15 °C.'*
- The conclusion to adopt alternative 3, *'To restrict the areas offered for leasing and licensing temporally or spatially'* is difficult to apply to bats given our limited knowledge and we would suggest that bats and offshore wind are identified as a data gap where further research should be prioritised and the precautionary principle (e.g. proactive curtailment) applied (see last paragraph below).

With reference to Appendix 1 A1a.7 on bats, we would like to raise the following points:

- Section A 1a.7.3.1. Collision: The point is made that information on bats *'flight height offshore, along with the conditions which may influence these flight heights, is limited'*. We agree with this, although Lagerveld *et al.* (2021) comment on this further, acknowledging that one of the limitations of their study is the height of the recorders, which can only record bats up to around 45m above sea level in optimal conditions. They suggest that low flight altitudes may be restricted to coastal waters whilst migration further offshore is likely to be at greater altitude, with migrating bats benefitting from increased tailwind speeds at higher altitudes. Reference to a paper from the USA is made, which recorded bats offshore at altitudes of over 200m above sea level (Hatch *et al.*, 2013).
- Section A 1a.7.4.1. International: This states that *Pipistrelle nathusii* is listed on Annex II of the Habitats Directive but this is not the case (see [Article 17 Habitats Directive Report 2019 \(Species\) | JNCC - Adviser to Government on Nature Conservation](#)).
- Section A 1a.7.4.1. International: No reference is made to the primary legislation protecting bats in the UK, which is the Conservation of Habitats and Species Regulations (2017)(as amended) in England and Wales, the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) in Scotland and The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland.

- Section A 1a.7.4.1. International: Finally, Eurobats Resolution 8.4 on Wind Turbines and Bat Populations includes the following, which should be recognised in the OESEA:
 - *‘Recognising that several bat species forage and migrate offshore and that as a result offshore wind farms may negatively impact bat populations’*
 - A recommendation to parties is to *‘Take into account the impacts that onshore and offshore wind turbines have on bat populations on different geographical scales.’*

We recommend that further research on bats and offshore wind is prioritised and funding is provided through the Offshore SEA Research Programme.

Key priorities are to:

- consider different technologies that may be appropriate for research in this area, bearing in mind this is likely to be more complex than onshore research, e.g. acoustic sensors, MOTUS tracking, radar, thermal imaging cameras;
- investigate innovative options for monitoring bat collisions with offshore wind turbines, e.g. acoustic localisation, stereo thermal imaging, WT Bird (which detects vibrations in turbine blades from collisions);
- further our understanding of the spatial and temporal distribution of bats offshore (including the environmental conditions during which they migrate);
- further our understanding of bat behaviour around offshore wind turbines, including flight heights and speeds, flight in the collision risk zone, foraging behaviour and bats staying overnight on offshore infrastructure, which will better enable us to understand collision risk; and
- further our understanding of the likely impact of existing and future offshore wind development on bat populations.

Through discussions with offshore wind developers and owners, we understand that the retrospective fitting of equipment to offshore wind turbines is complicated (expensive, risky, time consuming) and it would be more appropriate to proactively fit acoustic detectors on offshore wind turbines whilst they are onshore, during construction. This will require collaborative working with stakeholders and studies may therefore require a long lead-in time.

Finally, bearing in mind that it will take a long time to collect further information on bat distribution and behaviour offshore and the pace of offshore wind development, the precautionary principle should be applied. In the Borssele wind farm zone in the Netherlands, curtailment during certain times of the year/night (from 25th August to 10th October between sunset and sunrise¹) and in particular environmental conditions (wind speed lower than 6ms⁻¹, also depending on wind direction and temperature combined²) will be applied as standard to all new offshore wind turbines. This means that when developers tender for offshore wind construction in this zone the related (small) energy losses can be accounted for and bidding is carried out on a level playing field.

Curtailment for the UK could be based on information already collected (from the Netherlands and Belgium) about when bats fly offshore and refined as more research data is collected. The bats that are passing through curtailed Dutch offshore wind farms are the same population as those passing through fully operational UK offshore wind farms. As all UK bat species receive strong legal protection at the national and international level, and considering what we know about bats, wind energy and migration, we propose this as an appropriate and effective way forward.

¹ Information provided to the Conference on Wind Energy and Wildlife in Egmond aan Zee, Netherlands between 4-8th April 2022

² As above

References

Hatch, S.K.; Connelly, E.E.; Divoll, T.J.; Stenhouse, I.J.; Williams, K.A. Offshore Observations of Eastern Red Bats (*Lasiurus borealis*) in the Mid-Atlantic United States Using Multiple Survey Methods. *PLoS ONE* 2013, 8, e83803

Lagerveld, S.; Jonge Poerink, B.; Geelhoed, S.C.V. Offshore Occurrence of a Migratory Bat, *Pipistrellus nathusii*, Depends on Seasonality and Weather Conditions. *Animals* 2021, 11, 3442.

Limpens, H.J.G.A., S. Lagerveld, I. Ahlén, D. Anxionnat, T. Aughney, H.J. Baagøe, , L. Bach, P. Bach, J.P.C. Boshamer, K. Boughey, T. Le Campion, M. Christensen, J.J.A. Dekker, T. Douma, M.-J. Dubourg-Savage, J. Durinck, M. Elmeros, A.-J. Haarsma, J. Haddow, D. Hargreaves, J. Hurst, E.A. Jansen, T.W. Johansen, J. de Jong, D. Jouan, J. van der Kooij, E.-M. Kyheroinen, F. Mathews T.C. Michaelsen, J.D. Møller, G. Pētersons, N. Roche, L. Rodrigues , J. Russ, Q. Smits , S. Swift, E.T. Fjederholt, P. Twisk, B. Vandendriesche & M.J.

Schillemans, 2017. Migrating bats at the southern North Sea - Approach to an estimation of migration populations of bats at southern North Sea . Rapport 2016.031. Zoogdiervereniging (Dutch Mammal Society), Nijmegen/ Wageningen Marine Research.



Offshore Energy SEA 4 ER Consultation
Department for Business, Energy and Industrial Strategy

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

BY EMAIL

27 May 2022

Dear Sir/Madam

The Wildlife Trusts response to the Offshore Energy Strategic Environmental Assessment 4 Environmental Report

The Wildlife Trusts (TWT) welcome the opportunity to comment on the Offshore Energy Strategic Environmental Assessment (OESEA) 4 Environmental Report (ER).

TWT, with more than 800,000 members are the largest UK voluntary organization dedicated to conserving the full range of the UK's habitats and species, whether they be in the countryside, in cities or at sea. TWT manages 2,300 reserves covering more than 90,000 hectares of land including coastal reserves; TWT stand up for wildlife, inspire people about the natural world and foster sustainable living.

TWT support the UK's current targets to reduce greenhouse gas emissions and the government's ambitions to tackle climate change and increase the proportion of overall energy generated from alternative sources. However, we do not believe that this should be at the expense of the environment and firmly believe that it needs to be 'right technology, right place'. This includes the location and type of grid infrastructure to accommodate 50GW of offshore wind by 2030.

Detailed comments on the OESEA 4 ER can be found in Appendix A. TWTs overarching view on the recommendations is summarised below.

1. Presumption against development in benthic Marine Protected Areas (MPAs)

We need to go beyond making applicants aware of the risks of development in Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Marine Conservation Zones (MCZs), as mentioned in recommendation 1, and towards an avoidance and a presumption against development in benthic MPAs. It is critical that developers are not given the wrong impression that it is acceptable to cable through these protected sites.

As the OESEA 4 recognises, a large number of benthic MPAs are in unfavourable condition. Marine compensation for benthic habitats is extremely difficult to identify and deliver. It needs to be made



clear that if there are no options other than to cable through an MPA, consenting will be complex and time consuming due to the difficulties in identifying and delivering benthic compensation. Options which cable through MPAs face consenting risk, expense and delays. To avoid the need for compensation the mitigation hierarchy must be followed and the avoidance of MPAs is prioritized. The presumption against development in benthic MPAs should be recognised within the OESEA 4 ER recommendations.

2. Need for strategic solutions

While TWT agree with the recommendation that strategic compensation for seabirds, e.g. management of sandeel fisheries, should be given consideration at a policy level, the need for strategic solutions also applies across other receptor groups, including for benthic habitats and marine mammal SACs, where there are significant issues that cannot be dealt with at solely the project level by individual organisations. Measures must be developed urgently and at a strategic level to avoid consenting delay and risk.

For instance, as previously mentioned it is very difficult to provide 'like for like' benthic compensation; subtidal sandbanks and rocky reefs cannot be recreated in same manner that some terrestrial habitats are restored. Therefore, one of the only viable compensation measures is the removal of existing pressures such as fishing. This measure does not lie within the gift of an individual developer and therefore would require a strategic approach.

This need for the consideration of strategic solutions to address the serious impacts on the environment from future policy has also been identified in the recently published British Energy Security Strategy (BESS).¹ Further consideration what the OESEA 4 can do to recommend or facilitate strategic solutions is required therefore required.

For example, one alternative could be the development of cable corridors. To protect cables, anchoring and fishing exclusion zones would be implemented. This would mean that unburied cables would not require cable protection and therefore marine compensation would not be required. Please note that there is industry interest in this proposal. For example, the European Subsea Cable Association (ESCA) is currently holding workshops with BEIS on the feasibility of cable corridors.

3. Need for marine spatial prioritisation

The report must strengthen the recommendation for urgent spatial prioritisation of marine activities. It is unknown whether we have enough sea space to cope with the increased levels of human activity in addition to the conflicting policy objectives. We need a holistic, strategic spatial energy plan for land and sea and effective marine spatial prioritisation in order to effectively manage these competing uses. This plan should be informed by an overarching land and marine policy statement and must align with land and marine spatial planning.

4. Rochdale envelope

¹ [British energy security strategy](#), published 7 April 2022.

TWT agree that the over-application of the Rochdale Envelope approach is an ongoing source of concern for offshore wind NSIP applications, not just for bird mortality but in the assessment of underwater noise impacts, which leads to unrealistic scenarios in environmental assessments. This results in the deferment of detailed mitigation, compensation and monitoring plans for these projects to the post-consent stage.

From TWTs perspective, this creates uncertainty around the adequacy of measures to protect the environment and increases precaution. In addition, the wide project envelopes result in difficulties in undertaking realistic cumulative impact assessments. The Wildlife Trusts recommend that the OESEA 4 calls for a review of the use of the Rochdale Envelope across offshore wind assessments, as well as the development of new guidance on its appropriate use in applications.

5. Post-consent wind farm monitoring

We welcome the recommendation that a comprehensive strategic review of post-consent wind farm monitoring is required. As the OESEA 4 rightly identifies this will help inform environmental assessments, the consenting of future developments and identify where the gaps in the evidence lie. We suggest that the report also makes the recommendation that this monitoring data should be made publicly available in order to take account of a changing baseline and allow for best practice to develop.

6. Future oil & gas licencing

TWT is pleased that the OESEA 4 ER identifies a transition away from fossil fuel heavy energy generation towards renewables. However, TWT expects clearer commitments from BEIS on the timescales for moving away from fossil fuels. This is particularly important given the recent publication of the BESS earlier this year and the ongoing energy security crisis as domestic oil and gas are still largely dependent on volatile international markets.

7. Existing knowledge gaps

We agree with the identification of harbour porpoise ecology as a critical knowledge gap to be filled. We highlight the usage of protected sites by harbour porpoise and population level changes as areas where evidence is particularly lacking.

While the OESEA recognizes the knowledge gaps associated with surface and submerged wave and tidal devices, there is limited recommendations for floating offshore wind despite the need for greater understanding of the implications of floating offshore wind on marine mammals, fish, birds and benthic communities, especially at the commercial level. For example, the presence of mooring lines has the potential to cause barrier effects and displacement to these species. This must be given adequate weight within the report considering the implications for decision making for floating offshore wind in the Celtic Sea.

Thank you for considering the information included in this response. TWT would be more than happy to discuss our comments in more detail with BEIS if this would prove useful.

Yours sincerely



Marine Planning Manager, The Wildlife Trusts

Appendix A: Detailed Comments on the OESEA 4 Environmental Report (ER)

No.	Subject (page / section no.)	Comment
	Context to the draft plan/programme	The OESEA 4 ER should be updated to make reference to the recently published British Energy Security Strategy (BESS), including the updated target of 50GW of offshore wind by 2030. Does BEIS have any intention to update the assessments in the OESEA 4 ER, given the amplified pressures from offshore development over the coming decade?
	Context to the draft plan/programme	Based on the scale of planned offshore energy development over the next 10 years, it is not appropriate for the SEA to only consider renewable projects in English and Welsh waters. This does not fully take account of cumulative impacts from multiple offshore energy developments at a regional seas level. The OESEA4 should be a UK wide document which is split into regional seas areas for the purposes of assessment. We previously raised this concern in our response to the OESEA 4 scoping consultation.
	Context to the draft plan/programme	The OESEA 4 ER does not appear to cover offshore grid reinforcement infrastructure, such as 'bootstraps' or multi-purpose interconnectors. While TWT recognise that an individual cable may not lead to significant environmental impacts, without considering this infrastructure the OESEA is not fully taking into account of the cumulative impacts of offshore energy generation and distribution.
	Context to the draft plan/programme	It should be noted that it is TWTs view that the draft Energy NPS is not fit for purpose. It is not consistent with current climate policy or nature policy. There are also issues with the longevity of the policy, especially considering the work of the Offshore Transmission Network Review (OTNR) and Defra Marine Spatial Prioritisation Programme. In its current form, the Energy NPS is not sustainable, will still result in consenting delays and risks and as stated clearly in the Appraisal of Sustainability, will result in serious negative ecological impacts. TWT has previously communicated this view to BEIS, through a written response to the BEIS consultation and oral evidence to the BEIS Committee.
	Overview of main sources of effect and controls in place	It should be noted that as well as impacts on marine mammals, birds and fish, there is evidence that noise also has the potential to cause behavioural and physiological effects on invertebrates.
	Overview of main sources of effect and controls in place	The sources of effect should also include the following: "Potential effects of direct or secondary entanglement of mooring lines on marine mammals and fish." This is particularly relevant for all technologies which use mooring lines to tether to the seabed e.g. floating offshore wind.

	Assessment: underwater noise	<p>TWT welcome the recommendation of the report for <i>“the adoption of mitigation measures such as reducing noise emissions through modifications to offshore wind installation methods and careful planning to minimise the impact from temporal and spatial overlap between harbour porpoises and construction activity,”</i> however more needs to be done to manage the cumulative impacts of underwater noise from multiple projects.</p> <p>Based on the scale of planned development to meet net zero it is crucial that the OESEA 4 considers the cumulative impacts of underwater noise impact at a population level and how this could potentially impact distribution patterns of marine mammals in UK seas. These impacts will be compounded by the effects of climate change. Please note that harbour porpoise populations are declining in German waters² and we question what this means in terms of wider distribution of the species.</p> <p>To improve underwater noise management, TWT recommend:</p> <ul style="list-style-type: none"> • The introduction of a noise limit across UK waters. • Strategic monitoring of marine mammals to build the evidence base and look at population-level impacts. • Transparent reporting on the current area-based thresholds used to manage underwater noise in harbour porpoise SACs. • Guidance from regulators on preferred technology to reduce levels of underwater noise.
	Assessment: seabed disturbance and blue carbon	<p>While TWT welcome the mention of blue carbon and reference to the potential loss of carbon sequestered in seabed sediments due to installation activities, we cannot agree with the statement that <i>“The scale of such loss [blue carbon] relative to the carbon dioxide reductions the draft plan/programme seeks to contribute to is considered to be small, and also when considered in the context of the habitat provided by the structures and its potential contribution to blue carbon sequestration, however, there is a high level of uncertainty in this area.”</i> This is due to the significant uncertainties and the lack of knowledge in this field, particularly surrounding the unmapped spatial distribution of blue carbon habitats in UK waters.</p>

² Nachtsheim, Dominik A., et al. Small Cetacean in a Human High-Use Area: Trends in Harbour Porpoise Abundance in the North Sea Over Two Decades. *Frontiers in Marine Science* 7 (2021): 1135.

	Assessment: seabed disturbance	<p>As previously mentioned in our response to the scoping report, TWT would like to raise that damage and decline to MPAs³ is already occurring, with offshore wind farm infrastructure being a contributing factor. In addition, offshore wind farms are now facing the need for compensation due to impacts on protected benthic habitats⁴. Benthic compensation is extremely difficult to deliver and finding solutions will become an increasingly difficult issue when consenting future offshore wind farms. Strategic solutions may provide a way through this and this has already been recognised in the BESS. The OESEA 4 must also recognise the need for strategic solutions. This may include the need to reduce existing pressures, such as fishing, before new pressures from offshore energy projects can be introduced.</p> <p>Regarding floating wind, anchoring structures will be placed in deeper areas where we expect habitats and species will be more sensitive to impacts. Baseline data must be gathered on the types of habitats and species which could be impacted by floating offshore wind and sensitivity to these activities. As above, increased cabling needs will also need to be considered.</p>
	Assessment: interaction of wildlife and surface and submerged devices	<p>TWT strongly agree with the statement <i>“the SEA recommends that for the deployment of single devices and small arrays, appropriately focussed surveys of animal activity and behaviour should be undertaken to inform commercial scale deployment risk assessments and consenting.”</i> This approach should be applied across all emerging marine energy technologies.</p> <p>For example there are gaps in understanding on the implications of floating offshore wind on marine mammals, especially at the commercial level. The presence of mooring lines has the potential to cause barrier effects and displacement to these species. The OESEA should recognise that stringent monitoring of animal activity and behaviour around these arrays should be undertaken to measure risk to the environment and inform future developments.</p>
	Landscape/seascape: tidal barrages	<p>We disagree that tidal barrages should not be discounted entirely. Existing evidence has highlighted that these developments result in unacceptable levels of habitat damage and species loss to areas of high biodiversity and environmental protection, as well as conflicting with existing government policy on ensuring nature’s recovery.</p>

³ E.g. [Inner Dowsing, Race Bank and North Ridge SAC](#), [The Wash and North Norfolk Coast SAC](#)

⁴ E.g. [Hornsea 3](#), [Norfolk Boreas](#)

	Interrelationships – Cumulative effects	<p>Just as the OESEA 4 views navigational areas as hard constraints, the report should recommend that there is should be avoidance and a presumption against development in benthic MPAs.</p> <p>As the OESEA 4 recognises, a large number of benthic MPAs are in unfavourable condition. Marine compensation for benthic habitats is extremely difficult to identify and deliver. It needs to be made clear that if there are no options other than to cable through an MPA, consenting will be complex and time consuming due to the difficulties in identifying and delivering benthic compensation. Options which cable through MPAs face consenting risk, expense and delays. To avoid the need for compensation the mitigation hierarchy must be followed and the avoidance of MPAs is prioritized. The presumption against development in benthic MPAs should be acknowledged within the OESEA 4 ER recommendations.</p>
	Interrelationships – Wider policy objectives	<p>TWT recognise the conflicting policy targets that BEIS has presented between the National Policy Statements, Marine Policy Statement, the UK marine site network and the Environment Act 2021. In the face of these disparate objectives, it is crucial that the OESEA 4 strengthens its recommendations for urgent and holistic marine spatial prioritisation of activities. This was reduce consenting risks and provide certainty to organisations in the marine space.</p>
	Spatial constraints mapping	<p>As previously mentioned in our response to the scoping report, TWT does not support this statement: <i>“Areas of relevant waters for which a theoretical capacity of less than 400MW could be achieved will be excluded from the analysis for standalone wind farms, or 300MW for potential extensions where potentially viable resource areas abut existing wind farms.”</i></p> <p>Marine energy even of a lower energy capacity, if placed in the wrong location, will have an adverse effect on the environment. This is particularly relevant if infrastructure is placed in an MPA in unfavourable condition.</p>
	Recommendations: recommendation 7	<p>As well as the socio-economic objectives of the UK Marine Policy Statement (MPS) and the Energy National Policy Statements, the OESEA 4 should also make reference to the relevant environmental objectives from the MPS as well as targets from the Environment Act, particularly surrounding the recovery of the marine environment.</p> <p>It should be noted that the consideration of the impact of offshore energy development on the UK MPA network is a requirement under marine plan policy objectives. In addition, careful monitoring of the status and coherence of the UK MPA network will be required.</p>

	Appendix 1: Marine mammals	The OESEA should reassess its conclusions regarding “occasional sightings” of bottlenose dolphins in coastal waters off north-east England. Over the last few years it has become increasingly apparent that individuals from the Moray Firth SAC population are migrating further down the east coast of England than hitherto. Projects such as Citizen Fin (based in St Andrews University) is have identified functional links between bottlenose individuals recently sighted in this area and the residents of the Moray Firth SAC. The assessment should be updated to recognise this recent increased in the southern extent of migration from this site.
	Appendix 1: Marine mammals	It should be noted by the OESEA 4 that the results from 2020 suggest that the 2019 count was a real decrease. ⁵ Recognising this decline in the east coast harbour seal population as a cause for significant concern, particularly considering that this survey area includes the Wash & North Norfolk SAC, the Special Committee on Seals (SCOS) have highlighted this population as a priority for additional research and increased monitoring. ⁶ We would like to flag these significant declines and reiterate this concern.

⁵ <http://www.smru.st-andrews.ac.uk/scos/scos-data/august-seal-counts/august-seal-counts-england/>

⁶ <http://www.smru.st-andrews.ac.uk/files/2021/06/SCOS-2020.pdf>

**CCSA Response to the BEIS Consultation on:
UK Offshore Energy Strategic Environmental Assessment**

27th May 2022

The Carbon Capture and Storage Association (CCSA) is pleased to provide a response to the BEIS consultation on the UK Offshore Energy Strategic Environmental Assessment (OESEA 4). The CCSA brings together a wide range of specialist companies across the spectrum of Carbon Capture, Utilisation and Storage (CCUS) technology, as well as a variety of support services to the energy sector. The CCSA exists to represent the interests of its members in promoting the business of CCUS and to assist policy developments in the UK, EU and internationally to support the commercial deployment of CCUS.

Overview

Overall, the proposals for CCUS in the Offshore Energy SEA4: Environmental Report are well referenced and provide a good summary of the technical literature, especially on CO₂ storage.

There are however several areas where improvements can be made to the document, primarily in relation to the correct framing of CCUS and its future role in achieving net zero.

- **Co-location of CO₂ Storage and Offshore Wind:** The topic is explored in the document, with some key risks identified – however, the language does not reflect the scale of the potential co-location issue, given that offshore wind is due to scale up to 50GW by 2030, and CO₂ storage expected to grow from 10-20Mt per year by 2030 – to approximately 100Mt per year by 2050. The co-location issues are currently being discussed in the Offshore Wind and CCUS co-location forum, led by The Crown Estate – the CCSA recognised this risk as a key barrier to the delivery of UK CCUS ambition¹ and recommend engagement with that forum to ensure the net zero framing in the offshore of both sectors is appropriate in this document.
- **Need to access storage sites at short notice:** The document notes that seismic surveying is the key co-location conflict between offshore wind and CCUS. It is important also to note that during and after injection of CO₂, access (by drilling rig and support vessels) to the storage complex is needed in case of remediation/intervention at the store. This is a key risk which should be explored in the report.
- **Representation of CCUS locations:** The maps identifying CO₂ storage locations are inadequate and not up-to-date. The potential storage locations are already mapped in detail², and given the significant planned growth, we recommend that these figures are updated to reflect the future buildout potential and prospective storage sites – rather than just those currently leased.
- **Ambiguous language on CO₂ leakage risk:** The language in the document needs to reflect the very low risk probability of CO₂ leakage from storage sites which are well referenced within the draft OESEA. In some cases, as written, it can be interpreted that leakage is an expected and common occurrence, this however is not the case, as it can be expected that 99.99% of the injected CO₂ remains in the subsurface for at least 500 years³.

¹ CCSA 2022. CCUS Delivery Plan 2035. Available at: <https://www.ccsassociation.org/wp-content/uploads/2022/03/CCSA-CCUS-Delivery-Plan-2035-FINAL-25-March-2022.pdf>

² www.co2stored.co.uk

³ Zero Emissions Platform, 2019. CO₂ Storage Safety in the North Sea: Implications of the CO₂ Storage Directive. Available at: <https://zeroemissionsplatform.eu/co2-storage-safety-in-the-north-sea-implications-of-the-co2-storage-directive/>

It is critical that communication on leakage risk is accurate and reinforces the low probability of such events occurring.

- **Evolution of CCUS technologies, practices and operation in the UKCS:** The document as written notes that CCUS is untested in the UK Continental Shelf (UKCS), and the report is well referenced on current CO₂ storage technologies and practices. The draft report however doesn't recognise that for CCUS, when projects deploy and the industry grows to meet 2030, 2035, and beyond targets, the understanding on technologies, best practice is and operational processes will change at pace. Providing the wider scale up context is vital to future proof the OESA 4 in a quickly emerging sector.

Specific Recommendations

Alternative 1b (page xlvi): Discounting Alternative 1b

The CCSA support the conclusion on page xlvi, to discount the Alternative 1b – ‘*Not to licence and lease areas of the UKCS for carbon dioxide storage*’. The future leasing of CO₂ storage is critical for the deployment of the sector at the scale to achieve climate targets – and the CCSA encourage BEIS to consider the potential for future licensing rounds for CO₂ storage sites coordinated with offshore acreage leasing processes⁴.

5.3.2.4 Carbon dioxide storage

“The frequency and cumulative acoustic disturbance associated with geophysical monitoring of carbon dioxide storage is not clear”.

This point requires further clarification. As it is currently written it suggests that the acoustic disturbances associated with monitoring CO₂ in the subsurface is not known. As the report notes, the monitoring of CO₂ in the subsurface using acoustic signals is well documented and follows the same techniques as regular seismic surveying activity.

However, the area of relative unknown in the UKCS is more specifically the cumulative impact of repeated monitoring through seismic surveys required for CO₂ storage over the lifetime of the storage complex (pre-, during, and post- injection of CO₂).

5.7.3 Potential inter-plan conflicts

The text under 5.7.3 clearly highlights the potential co-location issues faced by developers of CO₂ storage sites and offshore wind. The text and associated appendixes do not reflect two key items:

- 1) Future prospective CO₂ Storage Sites:** The UK storage assets are widespread across the East Irish Sea, Southern and Central North Sea. The appendixes and references only note areas which are currently leased for CO₂ storage, this does not represent the full suite of potential storage sites in the UK subsurface (which can be seen at www.co2stored.co.uk). Many potential CO₂ storage sites required to achieve net zero have not yet been leased, but will still need to be considered as future offshore wind leasing takes place. Through the Offshore Wind and CCUS Co-location Forum, led by the Crown Estate, work is underway to quantify where co-location issues are most likely in the future. The CCSA recommend that

⁴ CCSA, 2022. CCUS Delivery Plan 2035. Available at: <https://www.ccsassociation.org/wp-content/uploads/2022/03/CCSA-CCUS-Delivery-Plan-2035-FINAL-25-March-2022.pdf>

these co-location regions and most prospective future CO₂ storage leases should be reflected in this document.

- 2) Access to the storage site:** The document notes seismic monitoring is the primary issue of co-locating CO₂ storage with offshore wind. Whilst this is true, acknowledgement should also be given to the need for access to the storage site to access wells/the storage complex should any remediation be required (such as drilling relief wells, or intervention needed). This would entail access for drilling rigs and support vessels.

5.13.2.3 Accidental events related to carbon dioxide storage

“The principal sources of CO₂ leaks from carbon capture, usage and storage (CCUS) projects are either mechanical... or geological...”

This section of the report is very well referenced and clearly outlines the main risks and uncertainties associated with CO₂ storage in the subsurface. The opening sentence however frames CO₂ leakage as a common or likely event. As the document goes on to explain, leakage is unlikely, and leakage in a significant event is highly unlikely – this should be reflected in the text.

The CCSA recommends that the opening sentence is updated to *“The **primary potential** sources of CO₂ leaks from carbon capture, usage and storage (CCUS) projects are either mechanical...or geological...”* & *“**For a typical North Sea storage site, it can be expected that 99.99% of the injected CO₂ remains in the subsurface for at least 500 years (ZEP, 2019)⁵.”***

The CCSA also recommends as a reference the inclusion of the Zero Emissions Platform (ZEP) 2019 report on CO₂ Storage Safety in the North Sea: Implications of the CO₂ Storage Directive (and references therein).

Table 5.35: “Hard” and “other” constraints used in spatial constraint mapping

As outlined above, the maps presented in the appendix do not demonstrate the future potential storage sites. The CCSA recommend that the maps relating to CO₂ storage are updated in accordance to ongoing work by the North Sea Transition Authority, The Crown Estate and the Offshore Wind & CCUS co-location forum.

This would ensure that future high ranking and prospective CO₂ storage sites are adequately represented and considered during spatial mapping and planning discussions, preventing future co-location overlap issues from occurring – or at least indicating where these issues may arise in the future, so mitigation can take place early.

⁵ Zero Emissions Platform, 2019. CO₂ Storage Safety in the North Sea: Implications of the CO₂ Storage Directive. Available at: <https://zeroemissionsplatform.eu/co2-storage-safety-in-the-north-sea-implications-of-the-co2-storage-directive/>



27 May 2022

RWE's Response to: OESEA4 Environmental Report

Dear BEIS,

RWE is a leading energy player with four main operating companies, of which three are active in the UK, including RWE Renewables, one of the world's leading renewable energy companies.

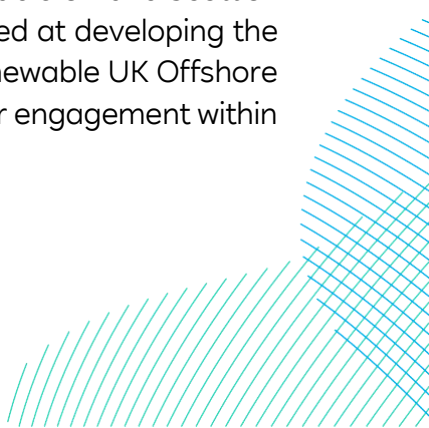
In the UK, RWE employs over 2,600 people and generates enough power for over 10 million homes, with a diverse portfolio of onshore and offshore wind, hydro, biomass and gas across England, Scotland and Wales. For a broad picture of the scale of our projects in the UK and Ireland, please see our infographic [here](#).

We have an ambitious commitment to expand our renewables portfolio in the UK, with around one-third of our planned global gross capex spend by end-2022 being invested into the UK. This is mostly on offshore wind, including our flagship Triton Knoll and Sofia projects.

RWE and its project partners have also signed Agreements for Lease with The Crown Estate to extend our existing Gwynt y Môr (North Wales), Galloper and Greater Gabbard (Suffolk), and Rampion (Sussex) offshore wind projects. Most recently, we were successful in securing Preferred Bidder status for two further offshore sites amounting to 3,000MW in the Round 4 Leasing Round by The Crown Estate. Overall, and including our committed investments in projects already under construction, RWE expects to invest around €15billion in new green technologies and infrastructure in the UK by 2030.

Our approach to offshore wind is to develop projects from early-stage scoping right through to operations, and we therefore have a wealth of experience in early-stage offshore wind projects, including in areas of consenting, surveying and leasing.

RWE's experience and scale of development has also seen us support a number of industry initiatives and groups. We sit on the Offshore Wind Accelerator Taskforce (OWAT) and the Offshore Wind Industry Council (OWIC), have board members at Renewable UK and Scottish Renewables and our team lead industry groups and programmes aimed at developing the offshore wind sector further. This includes deep involvement in the Renewable UK Offshore Consenting and Licensing Group (OCLG), which is the primary forum for engagement within



the offshore renewables industry on planning, consenting, licensing and environmental challenges.

With this experience in mind, we welcome the release of the Offshore Energy Strategic Environmental Assessment 4 (OESEA 4). The broad scope of the assessment provides a wealth of detail to support the direction of future leasing rounds and outlines how future development can continue in UK waters whilst mitigating impacts on the wider environment.

We are particularly supportive of the positive stances around the application of headroom in impact assessments and the calls for a strategic review of post-consent monitoring.

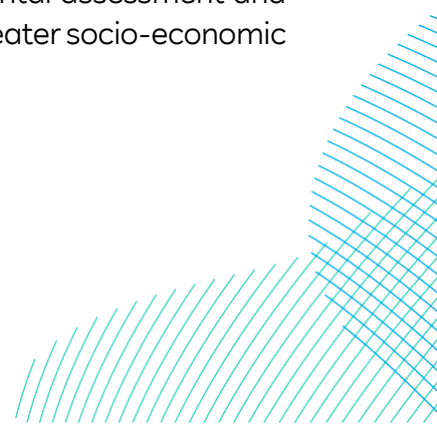
However, these positives may now already be out of date owing to the publication of the new British Energy Security Strategy (BESS), which the OESEA 4 doesn't take account of.

The BESS aims to deliver 50GW of offshore wind by 2030, an increased target which will require deployment rates of almost 5GW per annum. To achieve this rapid acceleration, the government has committed to a number of measures which are directly relevant to the OESEA 4 recommendations including:

- Reducing consenting times from up to four years down to one year and establishing a fast-track consenting route for priority cases.
- Strengthening the Renewable National Policy Statements to reflect the importance of energy security and net zero.
- Making environmental considerations at a more strategic level and introducing strategic compensation environmental measures, including for projects already in the system.
- Reviewing the way in which the Habitats Regulations Assessments are carried out for all projects making applications from late 2023.
- Implementing a new Offshore Wind Environmental Improvement Package including an industry-funded Marine Recovery Fund and nature-based design standards.

Coupled with these commitments for offshore wind are new incentives for the role of domestic oil and gas, with a further gas licensing round expected in Autumn 2022, as well as a doubling-down on existing commitments for CCUS and hydrogen. These technologies will be vying for the use of the seabed with offshore wind and it is clear that careful management will be needed to ensure the best outcomes for energy security, project development and the environment.

Overall, the BESS clearly prioritises accelerated deployment of offshore wind to reduce reliance on imported gas. A balance must now be struck with environmental assessment and habitat regulations accordingly, whilst continuing the drive to deliver greater socio-economic benefits and higher environmental safeguards.



With these new objectives in mind, RWE believes the recommendations of OESEA 4 are already out of date and that a strategic refresh is needed. This refresh should incorporate the objectives of the BESS and ensure a strategic marine spatial plan is developed to incorporate all energy technologies.

In this regard, RWE believes that BEIS should consider building on the recommendations of the recent [Future Offshore Wind Scenarios report¹](#) where a key finding was “*the need for whole system planning and integrated marine spatial planning*”.

Strategic thinking is required to meet the challenges of the BESS and creating an integrated marine spatial plan, alongside wider whole energy system planning, would support:

- A more strategic approach to environmental compensation and protection, set in the context of a national level rather than project level approach. This would ensure that the plan-level constraints proposed in OESEA4 reflect on, and reconsider, the even greater weight placed on the need to deliver a more ambitious target of offshore wind deployment. The increasing needs case for accelerated offshore wind development should also ultimately be reflected in decisions on individual projects in the consenting process
- A better alignment of Net Zero and Energy Security objectives with Habitat Regulation Assessments, environmental planning, consenting and project development. Any integrated spatial plan should be aligned to BESS targets and Net Zero objectives.
- A coordinated approach to future offshore wind development alongside technologies such as CCUS storage and oil and gas. Such an approach could minimise future conflicts between projects, which are often located in the same seabed area, and reduce combined impact affects such as noise disruption. The approach would also provide longer term certainty and visibility for developers on where opportunities and challenges may occur across UK waters, preventing environmental impacts, seabed disruption and project delays before they occur
 - In the interim of any future strategic plan, we would urge BEIS to develop new guidance on how offshore energy projects with overlapping development areas can resolve potential conflicts.

The BESS has set a new accelerated pathway for energy development in UK waters and RWE looks forward to working with BEIS and other stakeholders to ensure that a new coordinated approach to Environmental Assessments supports this. We have also provided some more detailed feedback relating to specific aspects of the OESEA 4 that directly link to current challenges faced by our projects. These are provided in Appendix A.

¹ Future Offshore Wind Scenarios Report: https://www.futureoffshorewindscenarios.co.uk/assets/report/20220421_FOW_Final_Report.pdf



If you have any comments or wish to discuss any of the issues raised, then please do not hesitate to contact me.

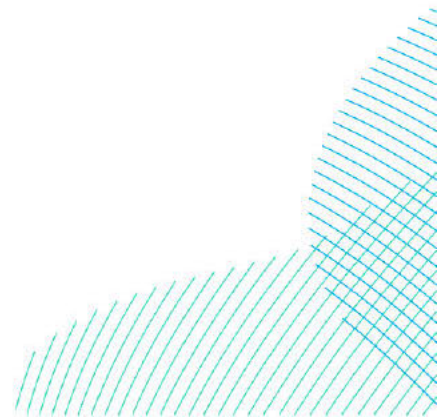
Yours sincerely,

[Redacted signature]

Senior Regulatory Affairs Manager, UK & Ireland

RWE Renewables

[Redacted contact information]



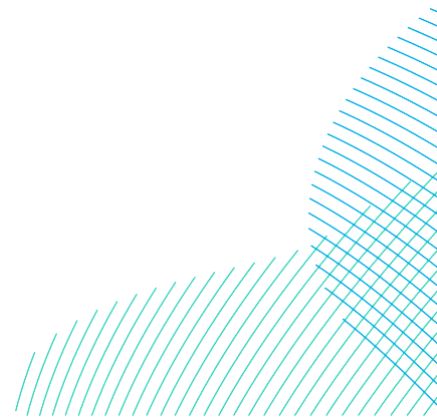
APPENDIX A – Detailed Response to specific aspects of OESEA 4

Referring to section 5.8.2.4 Activity specific considerations

RWE fully supports the conclusion presented in OESEA 4, reinforcing that of OESEA3, that consideration of coastal buffers is not suitable for seascape and visual effects as it would be a too generalised an approach which does not take into consideration local development considerations. RWE agrees that a blanket criteria for the location of developments is not appropriate for seascape and visual effects and that decisions should be made on the merits of an individual project consent application.

Referring to section 5.8.2.5 Seascape sensitivity

RWE supports the recognition that perceived seascape/landscape aesthetics can be subject to individual attitudes and perceptions. The positive perceptions of offshore wind as observed in the BEIS (2021) public attitude tracker is also reflected in independent public perceptions surveys conducted by RWE in the UK.



[REDACTED]
[REDACTED]
[REDACTED]

27th May 2022

Offshore Energy Strategic Environmental Assessment 4 (OESEA4) Environmental Report

Dear Sir/Madam,

We welcome the opportunity to respond to the above Consultation.

ScottishPower Renewables (SPR) is a leading developer of wind and other renewable energy generation, with over 2.8GW of operational capacity across over 40 sites. We are the renewables business of ScottishPower, a major UK energy company with network, retail and renewable generation interests. ScottishPower is the UK's first 100% green vertically integrated energy utility and always works to deploy the most efficient and cost-effective technologies, thereby delivering clean, green energy at the lowest cost to consumers, whilst minimising environmental impacts. ScottishPower operates as part of the Iberdrola group, an international utility and the leading renewable energy developer worldwide.

SPR presently has over 2.8 GW of operational renewable energy generation capacity across over 40 sites. We also have a strong pipeline of development projects throughout the UK including new, extended and repowered wind farm and solar sites, battery energy storage systems (BESS) and an integrated green hydrogen facility that will house the UK's largest electrolyser. In the offshore wind space our existing portfolio includes West of Duddon Sands and the East Anglia Hub. We are expanding rapidly, having been awarded the seabed rights to develop three new offshore windfarms with a combined capacity of 7GW off the coast of Scotland as part of the Crown Estate Scotland's ScotWind Leasing. We also look forward to participating in the Crown Estate's forthcoming leasing round for floating wind proposals in the Celtic Sea later in 2022.

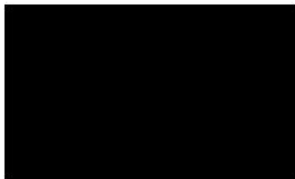
We have reviewed the Offshore Energy Strategic Environmental Assessment 4 (OESEA4) Environmental Report ('the ER') and pleased to provide our comments on selected key areas in **Annex A**. Given the extensive nature of OESEA4 ER and the open nature of this consultation, we have focused our response on four pertinent thematic areas: *Offshore Wind Draft Plan, Impact Assessment, Spatial Analysis and SEA Outcomes & Recommendations*. We have identified three key areas where OESEA4 should be strengthened to help accelerate offshore wind deployment and facilitate the UK's transition to net zero:

- **Offshore Wind Plan Scope:** The OESEA4 'draft plan' for offshore wind needs to be updated to respond to the increased deployment ambition (50GW) and accelerated timescales now set through the British Energy Security Strategy (BESS) (UK Government, April 2022). Building on analysis carried out in relation to 40GW deployment, the pertinent question is now therefore how at least 50GW offshore wind generating capacity, including 5GW floating offshore wind, can be deployed by 2030, with even greater capacity following in subsequent years to meet long-term deployment requirements up to 2050 as identified by the UK Committee on Climate Change (UKCCC);
 - **Integration of Leasing and Consenting Processes:** To unlock offshore renewable energy deployment at pace in accordance with the BESS, there is an urgent need to adopt a more integrated approach to leasing, marine planning (at national and regional
- [REDACTED]
[REDACTED]

levels) and infrastructure consenting (i.e. at project level). This should firstly be addressed at the leasing stage through mandating greater use of plan-level environmental assessments to address environmental issues earlier and thereby enable a more proportionate project-level response to the consenting process. We support the use of plan-level environmental assessments and suggest these should now be prioritised (including in resource planning and funding for relevant bodies) to inform fundamental development decisions, including available leasing areas, *before* individual projects enter the consenting process; and,

- **Robust and Transparent Spatial Analysis:** Notwithstanding our general support for the use of spatial analysis and plan-level assessments to inform leasing and consenting, we regret that we cannot support the use of the offshore wind constraints & opportunities maps as drafted within the ER (pages 536 - 550) owing to significant methodological concerns, principally a lack of transparency regarding the individual weightings applied to the “other” constraints listed in Table 5.35 of the ER. Other issues identified through our review of the hard and other constraints included within the spatial analysis also need to be resolved, with a further consultation then required before the finalised maps can safely inform policy development and future leasing on a robust basis.

SPR welcomes the opportunity to respond to this consultation and we trust our comments are helpful for completing the OESEA4 process. We would be pleased to discuss any aspect of our response with the BEIS OESEA4 team and would welcome further dialogue on the identified issues.



Senior Planning and Environmental Policy Manager

Annex A: Responses to Consultation

1. Offshore Wind Draft Plan

Scope

Overall we welcome the inclusion of a specific draft plan and programme for offshore wind deployment (hereafter 'the draft plan') within the OESEA4 Environmental Report (hereafter 'the ER'). This approach helpfully provides an evidence based view from the Department for Business, Energy and Industrial Strategy (BEIS) of how the UK can achieve the target previously set in 2020 through the Offshore Wind Sector Deal of 40 GW deployment (including 1GW floating offshore wind) by 2030. We also welcome clear identification within the draft plan of the need for further offshore wind leasing in future years by The Crown Estate (TCE) to underpin the achievement of the UK's statutory net zero emissions target by 2050. In addition, we are pleased the deployment of fixed and tethered technologies have been considered separately in the analysis detailed within the ER, as recommended within the SEA Scoping stage response submitted by Renewable UK (RUK) which ScottishPower Renewables contributed to.

As the BEIS OESEA4 team will be aware, in the period following publication of this ER the UK Government has published a new British Energy Security Strategy (BESS). This important publication now sets out a substantially higher ambition of achieving 50GW offshore wind deployment by 2030, including an increased 5GW target for floating offshore wind. To ensure the continued validity of the OESEA4 plan for offshore wind and associated OESEA4 recommendations, the pertinent question is now therefore how at least 50GW total generating capacity (rather than 40GW), including 5GW floating offshore wind, can be deployed by 2030, with even greater capacity following subsequent years to meet the long-term deployment requirements up to 2050 identified by the UK Committee on Climate Change (UKCCC).

Building on the analysis carried out through OESEA4 to date in relation to 40GW deployment, it is imperative that additional work is now progressed at pace to demonstrate how 50GW deployment can be achieved by 2030 without resulting in significant adverse environmental impacts when assessed at a strategic scale. The ambition of reaching 50GW deployment by 2030 stated within the BESS now effectively represents the updated offshore wind deployment 'plan' of the UK Government, so in accordance with core SEA requirements (i.e. to assess the likely significant environmental effects of all substantive plan components) a strategic-scale assessment of 50GW deployment needs to be carried out within OESEA4. It would be inappropriate to complete OESEA4 based solely on an already out of date 40GW draft plan and seek to defer consideration of 50GW deployment to a future OESEA5 at an as yet currently unknown time.

Plan Characteristics and Detail

Temporarily leaving aside the important distinction between planning for 40GW or 50GW deployment by 2030, we respectfully note that the draft plan for offshore wind is itself relatively brief and high-level in nature. Whilst the text does helpfully include an acknowledgement that the ScotWind leasing round offers the potential to deliver greater generation capacity (up to 24.7GW) than previously anticipated (10GW), the draft plan lacks any further consideration of the implications of ScotWind for total deployment across the UK or for future TCE offshore wind leasing rounds (i.e. in adjacent English waters). Furthermore, the draft plan neglects the importance of repowering for maintaining and increasing renewable energy generation capacity over time, as it includes only very limited consideration of future repowering and/or extension requirements and opportunities associated with existing, consented and under construction



offshore wind farms. Please refer to **Section 3 – Spatial Analysis** below for further comments regarding the treatment of repowering opportunities within the ER.

Implications for Future Leasing

The draft plan helpfully confirms a clear need for further offshore wind leasing in respect of both fixed bottom and tethered/floating deployment. However, unfortunately the draft plan does not address the key question of *how* this future leasing should be designed and delivered to ensure sufficient and timely release of seabed areas to unlock the require quantum and phasing of offshore wind deployment to underpin the achievement of the UK's net zero emissions target. To address this gap, identification of the need for further leasing should now result in additional OESEA4 recommendations to direct TCE to develop a long-term offshore wind leasing strategy and prepare for frequent leasing rounds over the period to at least 2050 (please refer to Section 4 – SEA Outcomes & Recommendations for further details). This would increase visibility of leasing opportunities and enhance confidence throughout the offshore wind supply chain.

SPR fully recognises the need for TCE to manage its assets, including seabed resources, in an efficient and financially sound manner in accordance with the Group's Strategy and statutory remit. In this context, we believe the need for substantial further offshore wind deployment to meet (and thereafter maintain) the UK's statutory net zero emissions target means it is vital for future leasing to be carefully designed based on an overarching strategy of seeking to maximise the long term success of deployment (i.e. including cumulative financial returns), rather than seeking to maximise short term option payments from each leasing round in isolation.

Key elements which should be considered in the design and delivery of effective leasing rounds include their phasing, forward visibility, market demand and capacity levels, financing costs, technology-specific deployment density ranges, expected installed generation capacity, the number of leasing areas made available per round, complexity of the leasing process, and the selection of suitable areas including with regard to environmental acceptability (including cumulative impacts) and consentability. Any failure to optimise leasing rounds with respect to these factors risks undermining the long-term success of offshore wind deployment in the UK. For example, if individual leasing rounds do not provide a sufficient quantum and range of suitable leasing areas to accommodate both market demand and electricity supply requirements, this could unnecessarily constrain renewable energy generation capacity and weaken industry confidence in subsequent leasing rounds.

Potential over-stimulation of competition through infrequent leasing or by tightly restricting seabed areas made available within individual leasing rounds/auctions could act to reduce the ability of developers to invest, particularly in innovative technologies and environmental measures in order to maximise the overall success of offshore wind deployment. If the situation was to materialise, this suboptimal outcome would materially hamper the long-term growth of the UK's offshore wind sector. To ensure the effectiveness of future offshore wind leasing, we therefore consider OESEA4 should include an additional recommendation instructing TCE to complete an independent analysis of the effectiveness of the scale, design and delivery of the recent Round 4 leasing, with any findings implemented in future leasing rounds.

Integration of Leasing and Consenting Processes

Under present arrangements developers can only bid for seabed leases and develop in the limited areas offered by TCE. This means that any environmental constraints associated with leasing areas, especially any not identified and taken account of during leasing, then represent potential consenting and deployment risks. As prepared, the draft plan unfortunately lacks any recognition



of the need for greater integration between leasing and consenting processes to achieve time-limited deployment targets.

The current regulatory and policy landscape overlooks opportunities to align seabed leasing, marine planning and infrastructure consenting. To unlock offshore renewable energy deployment at pace in accordance with the BESS, there is an urgent need to adopt a more integrated approach to leasing, marine planning (at national and regional levels) and infrastructure consenting (i.e. at project level). This should firstly be addressed at the leasing stage through mandating greater use of plan-level environmental assessments to address environmental issues upfront and thereby enable more proportionate project-level consenting. We strongly welcome the use of plan-level environmental assessments and suggest these should now be prioritised (including in resource planning and funding for relevant bodies such as TCE and SNCBs) to inform fundamental development decisions, including available leasing areas, *before* individual projects enter the consenting process. It should also be recognised that plan-level assessment can help to refine the scope of subsequent project-level assessments and provide an evidence-base for early development of strategic mitigation, compensation and enhancement proposals.

Additional OESEA4 recommendations should therefore require TCE (and other relevant bodies) to undertake robust plan-level environmental assessments, including SEA as well as HRA, as a core part of all future leasing rounds. Building on the Round 4 plan-level HRA presently being carried out by TCE, adopting this approach as standard practice would help to ensure the general suitability of leased areas for offshore wind deployment at the earliest opportunity, including in terms of demonstrating the avoidance of ‘showstopper’ environmental constraints, which would help to establish the principle of development in the leased areas. Individual projects within leased areas could then proceed with greater confidence and at quicker pace through more efficient and proportionate consenting and permitting processes (e.g. simplified planning zones), which we suggest should focus more on testing detailed design and environmental considerations, rather than rehearsing debates regarding the general ‘principle of development’ each time.

2. Impact Assessment

In this section of our response we offer comments on a limited number of thematic topics addressed within the ER where these are of particular relevance to the assessment and mitigation of environmental impacts from offshore wind deployment.

Displacement Effects & Population-Level Impacts on Red-Throated Diver

The ER discusses a proposed highly precautionary and restrictive approach with regards to the protection of Red Throated Diver (RTD), stating that offshore wind development should “*avoid impinging on diver habitat*” and this “*could mean that no further windfarm or other development will be possible in or immediately adjacent to such sites*”. This effectively amounts to a proposed RTD avoidance policy (for future leasing) owing simply to data uncertainties, rather than in response to available UK evidence indicating a clear need to adopt a restrictive approach to protect RTD on ecological grounds. SPR therefore objects to the proposed RTD avoidance policy outlined within the ER on the grounds that such an approach would be disproportionate and inconsistent with the proper application of the precautionary principle.

As BEIS will be aware, subsequent to the publication of this ER, on 31st March 2022 the Secretary of State (SoS) granted Development Consent Orders (DCOs) for SPR’s East Anglia 1 North (EA1N) and East Anglia 2 (EA2) offshore wind farms. This followed detailed scrutiny of potential RTD impacts. In both determinations, the SoS concluded that the projects can and should be

authorised through derogations under the Habitat Regulations. In doing so, the SOS therefore concluded that, taking account of proposed design refinements and compensation measures, any predicted residual impacts on RTD as a qualifying feature of the Outer Thames Estuary Special Protection Area (SPA) and other designated sites would be acceptable. The EA1N and EA2 DCOs also provide for RTD monitoring and research activities to be undertaken to help address current data limitations.

These conclusions in respect of EA1N and EA2 were informed by robust scientific evidence and modelling regarding RTD effects and uncertainties, including analysis submitted by SPR firstly to the conjoined EA1N and EA2 DCO Examinations and then in response to post Examination questions posed by the SoS. Section 3 – Ecological Consequences of ‘the RTD Report’ submitted to the EA1N and EA2 Examining Authorities (June 2021), which is included as an extract in **Appendix 1**, provides a succinct review of available scientific research regarding links between RTD displacement effects from offshore wind developments and potential resultant population impacts (e.g. on mortality). This review concluded that:

“The available evidence suggests that the most likely result of displacement is that there will be little or no impact on adult survival, and that any impact would probably be undetectable at the population level. Indeed, there is very little evidence to support the upper range of mortality effects for displaced birds advised by Natural England (e.g. up to 10%), and on the basis of a review of the studies (Vattenfall 2019), even an additional mortality rate of 1% is considered precautionary”.

We are therefore concerned that the adoption of an RTD avoidance policy, which in-combination with other constraints could preclude future offshore wind leasing and development from large parts of the Southern North Sea, is disproportionate and would be misaligned with the proper application of the precautionary principle. Adopting a ‘pro-active framing’ of the precautionary principle, as a need to take identifiable actions based on known risks rather than delay to pursue further scientific inquiry, should actually see the deployment of further offshore wind farms prioritised whilst continuing to undertake RTD monitoring and research to fill data gaps. This more proportionate approach would align with the accepted definition of the principle from the Rio Declaration (1992), namely that “*where there are threats of serious or irreversible environmental damage, a lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation*”.

In summary, we therefore object to the proposed RTD avoidance policy set out within the ER. The finalised OESEA4 recommendations should instead set out a more nuanced approach which recognises the need for further offshore wind deployment in suitable areas and makes clear that leasing and consenting decisions should be based largely on available scientific evidence *at the time*. Pertinent scientific uncertainties should continue to be addressed on a case by case basis in accordance with the precautionary principle, but this should not result in an effective moratorium whilst further monitoring and research takes place.

Offshore Transmission Network Review (OTNR)

The ER indicates that the spatial and infrastructure implications of the ongoing Offshore Transmission Network Review (OTNR) have been excluded from consideration in OESEA4 owing to timing misalignments. We acknowledge that the timing of the ER publication does limit the ability of OESEA4 to undertake a full strategic-level assessment of the emerging National Grid ESO’s Holistic Network Design, which is being prepared under OTNR. Nevertheless, the very limited approach adopted to the consideration of grid connections within the ER is inappropriate as export cables and grid connections are required to enable offshore wind deployment and must therefore form a fundamental part of the ‘draft plan’ being consulted on through OESEA4. Adopting a more robust approach to the identification and assessment of grid issues would have allowed OESEA4 to generate additional recommendations for live OTNR workstreams to take

forward regarding how environmental effects from offshore transmission could be minimised and addressed.

Review of Conservation Objectives

We welcome and firmly endorse the call within the ER for some of the Conservation Objectives and associated status of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) to be reviewed and updated. However, we note the ER does suggest any proposed mechanisms or timescales for such updates, nor explore the potential outcomes of this process could mean for the management of existing designated sites.

As detailed more fully in our recent response to Defra's Nature Recovery Green Paper consultation, we believe that proportionate assessment requirements for species (i.e. as qualifying features of designated sites) should only consider population-level impacts and should take account of species mobility and resilience factors. This means the species-specific conservation objectives which presently underpin many European Sites should be revised to more dynamic and orientated towards protecting species health and its contribution to wider biodiversity at population level. Except in cases of critically endangered species with very low populations, conservation objectives should move away from descriptors with requirements to "maintain" population levels and/or spatial distributions thereof when measured against a reference point, as these effectively require any and all potential minor impacts on the relevant species, irrespective of scale, to be assessed even where there is little prospect of likely significant effects materialising at population scale.

Scour Protection

We would welcome greater clarity and consistency of advice from across Government regarding expectations for the management of potential environmental effects from scour protection systems. The ER suggest a need for rock scour protection to be minimised and removed, which is in direct contradiction with the recommendations of the Scour and Cable Protection Decommissioning Study - NECR403 (Peritus International Ltd, April 2022) recently published on Natural England's Access to Evidence portal. This study in fact recommends the opposite approach, with scour protection made from eco-friendly materials left in-situ.

3. Spatial Analysis

SPR supports the use of spatial analysis to underpin OESEA4 and, in principle, we welcome the use of constraints mapping to seek to identify the renewable energy deployment potential of each Regional Sea within English and Welsh waters. We are pleased that the spatial analysis has taken account of key differences between the deployment of fixed and tethered offshore wind generation technologies, as recommended by RUK at SEA Scoping stage. We also support the intention to distinguish between hard and "other" spatial constraints within the assessment methodology and welcome the use of Vessel Management System (VMS) data as an innovative and proportionate approach to consider important fisheries interests in strategic-scale assessments.

To accelerate consenting and deployment it will be important for future TCE offshore wind leasing to embrace a more spatially led approach which more directly takes account of environmental constraints, impact acceptability and spatial planning considerations from the outset when selecting viable leasing areas. We therefore request the finalised OESEA4 recommendations should require TCE to undertake plan-level assessments, informed by suitable spatial analysis and including a scoping phase involving wide stakeholder engagement, to underpin all future leasing rounds.



Following from our comments in Section 1 above regarding prioritisation of plan-level assessments and the need to better integrate future leasing and consenting, we would ordinarily be supportive of attempts to use spatial analysis to inform policy development and to guide the selection of suitable leasing areas. It is therefore of regret that, at present, we cannot support the use of the offshore wind constraints & opportunities maps included within the ER (pages 536 - 550) owing to significant methodological concerns, as detailed below.

The apparent omission from the ER (including appendices) of the specific weightings which have been applied to each individual “other” constraint layer, and the absence of any supporting justification being provided to explain each weighting, unfortunately renders the resultant suite of offshore wind constraints and opportunities maps invalid. This important omission cannot simply be resolved by retrospectively publishing the weightings applied to individual “other” constraints in the SEA Adoption Statement at the end of the OESEA4 process. Rather, as a ‘substantive component’ of OESEA4 and one which has a material bearing on its outcomes, SEA caselaw dictates that if the constraints mapping is to be used to inform policy development and future TCE leasing (which, as above, would ordinarily be strongly welcomed) then a further consultation must be held prior to this mapping being finalised.

Table 1 below presents a high-level review of the hard and “other” constraints applied in the spatial analysis presented for offshore wind deployment (fixed-bottom and tethered technologies), as listed in Table 5.35 of the ER.

Table 1: SPR Review of Hard and Other Constraints for Offshore Wind Constraints and Opportunities Mapping

Constraint	Wind	SPR Comments
Hard Constraints		<p>In principle, we support the intention to distinguish between hard and all “other” constraints when identifying potential future leasing areas. We broadly agree with how individual constraints have been split between these typologies, subject to detailed comments regarding each constraint provided below.</p>
Areas subject to lease by The Crown Estate for offshore wind, wave or tidal energy: 5km buffer	X	<p>We agree efficient deployment in existing leasing areas should be safeguarded when identifying new areas for future leasing rounds. However, this overly simplistic approach fails to acknowledge the need for future repowering of existing sites (and repowering of those currently planned and under-construction), as OESEA4 ER itself recognises (section 2.5.1, page 30).</p> <p>Leasing and consenting activities have so far focused on the initial deployment of offshore wind farms at scale, but attention will soon also turn to repowering of existing sites. Repowering will be vital to achieve the UK Government’s renewable energy and net zero targets through avoiding a backsliding of progress achieved to date. A supportive and proportionate approach should therefore be adopted to the consideration of both leasing and consenting applications for repowering in order to support deployment at the scale and pace required to achieve the UK’s net zero target.</p> <p>Whilst the long-term nature of some TCE leases may enable repowering without a need for participation in fresh leasing rounds, technological changes in the interim mean repowered sites are likely to occupy different footprints and have different densities to predecessor developments, which may trigger a need for TCE lease extensions or revisions. It is therefore not helpful for the OESEA4 constraints mapping to, perhaps inadvertently, imply that all existing sites, and therefore large parts of the Southern North Sea, should be excluded from consideration in future leasing and development, as this be essential to facilitate efficient repowering.</p> <p>To address this, finalised SEA recommendations (refer to Section 4 – SEA Outcomes and Recommendations below) regarding the use of OESEA4 constraints mapping should expressly confirm that this hard constraint applies only in the identification of new areas for leasing and does not preclude repowering of existing sites, which may require updated TCE leases. As offshore repowering will be of increasing importance over the coming decade, it is also recommended that spatial analysis for OESEA5</p>

Constraint	Wind	SPR Comments
		should include a specific new workstream regarding efficient repowering and should apply more sophisticated constraints layers within supporting analysis.
Aggregates licence and application areas	X	Agree
Aggregate exploration and option areas	X	Agree
Active offshore marine cables and pipelines: 500m buffer	X	Agree
Offshore wind cable agreements: includes wind farm cable corridors for projects in planning and consented. These typically cover areas greater than the footprint of the cables to be installed, but for the purposes of this exercise they reflect a cable route and reasonable buffer around them.	X	Similar to comments on existing TCE leased areas above, this should not preclude either modifications to existing cables for offshore wind farms or the repowering of existing sites.
Oil and gas infrastructure: 500m buffer representing safety zones (surface and subsurface)	X	Agree
Oil and gas infrastructure: 6nm buffer The 6nm buffer represents the distance at which helicopter final approach typically occurs; but note that obstacles within 9nm of an offshore destination would potentially impact some helicopter operations (low visibility or missed approach) and consultation must	X	Agree

Constraint	Wind	SPR Comments
therefore take place within this distance from a platform.		
IMO vessel routeing measures	X	Agree
<p>Navigation: Primary Navigation Routes 1 (PNR1) with 1nm buffer (derived from MCA 'siting not recommended' areas (draft and unpublished "OREI 1" primary navigation routes) and checked against 2012, 2017 and 2019 AIS annual average data. These routes include those defined in East Marine Plan policy PS2, and those defined as "high density navigation routes" and "main shipping routes" in the remaining English marine plans and Welsh National Marine Plan respectively.</p> <p>In order to account for the likely changes to routeing following the construction of consented offshore wind farms, the navigation risk assessments and indicative post-construction shipping routes for these projects have been accounted for. The Cumulative Navigational Issues in the Southern North Sea report (Anatec 2013) has also been considered, noting the changes to project boundaries</p>	X	<p>Agree. SEA recommendation 3 regarding potential updates to the Southern North Sea cumulative navigational effect studies (last undertaken 2011 and 2013) have been noted by SNSOWF, of which SPR is an active member and current chair. The recommendation will be considered further following clarification and finalisation of the SEA recommendations.</p>



Constraint	Wind	SPR Comments
<p>since its publication. These routes have been included for tidal stream devices for the purposes of this assessment, however it is recognised that some submerged devices in deeper waters which do not reduce under-keel clearance may not affect shipping during operation (see Section 5.7).</p>		
<p>MoD PEXAs: selected danger areas Airforce danger areas have vertically defined upper and lower limits and in most cases involve supersonic flight and combat training. Those areas identified to take place to surface level and involve live firing/bombing were considered hard constraints for the purposes of this analysis. Also note East Marine Plan policy DEF1.</p>	X	Agree
<p>Protected wrecks: including military remains, scheduled monuments and those designated under the Protection of Wrecks Act 1973, and their related exclusion zones.</p>	X	Agree
<p>Gas storage lease areas</p>	X	Agree
<p>CCS lease/licence areas</p>	X	Agree
<p>“Other” constraints</p>		<p>We note that footnote 315 outlines that all of the identified “other constraints” have been assigned weighting from 0-100 based on a range of subjective consenting and delivery factors. Whilst we have no</p>

Constraint	Wind	SPR Comments
		<p>issue with pursuing this approach, our most significant concern with the constraints mapping is the lack of any transparency regarding the specific weighting applied to each of the “other” constraints”. Individual weightings are not listed within Table 5.35 and do not appear elsewhere within the entirety of the OESEA4 ER (including associated appendices), at least they cannot be identified from trawling through what is an extremely large document. Importantly, a reasoned justification for the weighting assigned to each “other” constraint is also not provided within Table 5.35 or elsewhere within OESEA4.</p> <p>Our significant concern relates both to the treatment of individual “other” constraints, the weightings for which need to be transparently justified, and therefore also to the aggregate position when multiple constraint layers are overlaid. Aggregation of “other” constraints appears to be the main reason for OESEA4 proposing to exclude large parts of the Southern North Sea from future leasing, but without any transparency regarding the constraint weightings which lie behind this outcome the proposed approach lacks any legitimacy.</p> <p>Given the fundamental importance of the weightings assigned to each “other” constraint for the outcome of the mapping, this apparent omission cannot simply be resolved by publishing the weightings in the SEA Adoption Statement at the end of the OESEA4 process. Rather, as a ‘substantive component’ of OESEA4 and one which has a material bearing on its outcomes, SEA caselaw dictates that if the constraints mapping is to be used to inform future TCE leasing (which would ordinarily be strongly welcomed as helping to embed spatial considerations within leasing) then a further consultation must be held regarding the mapping and associated weightings prior to the mapping being finalised. Proceeding to finalise the mapping without affording a proper opportunity for consultation on individual constraint weightings would prejudice the outcomes of OESEA4 and any future use of the mapping to inform future TCE leasing rounds.</p>
Designated, candidate, possible, draft SACs and SPAs, where boundaries known. SACs and SPAs sites are not considered to be hard constraints, consistent with National Policy, although they are	X	We welcome the recognition that, in accordance with national policies, designated sites including SACs and SPAs are not automatically “hard” constraints, with the level of constraint instead determined by impact pathways which could affect site integrity and conservation objectives. We also welcome the acknowledgement within SEA Recommendation 1 (section 6.2) that designated sites “are not intended or treated as strict no-go areas”.

Constraint	Wind	SPR Comments
<p>subject to strict assessment criteria and must be given due weight in site specific environmental assessments and consent applications. Colocation may not be possible. The SNCBs continue to note that they cannot conclude no adverse effect on site integrity for certain SPAs and SACs sensitive to offshore energy projects. These sites in particular are highlighted, but note in terms of spatial interactions (and in particular for mobile species), effects may be generated at some distance from site boundaries.</p>		<p>Following from our significant concerns outlined above regarding the weighting assigned to individual “other” constraints, there is also no clarity regarding whether weightings have been assigned to all designated sites individually or if the same weighting has been given to all sites within a designation type. Assuming the former, the absence of any justification within the OESEA4 ER of the weighting assigned to each designated site (and the rationale for this) is a major deficiency which undermines the validity of the entire constraints mapping exercise.</p> <p>In Section 2 - ‘Environmental Impact’ above, we have set out our objection to the proposed adoption of a strict avoidance policy for offshore wind leasing and development within areas of red-throated diver (RTD) habitat. In the absence of any transparency regarding the weighting assigned to individual designated sites we can only assume that sites within the Southern North Sea (and elsewhere) designated on account of RTD qualifying interests have been assigned a high (or very high) constraint weighting. As a matter of principle we would object to such weightings being applied and consider these designations should only receive a medium-level constraint weighting, as for the reasons detailed in Section 2 it is not appropriate or proportionate to adopt a strict avoidance policy. The absence of any rationale being provided to explain the (also unpublished) weighting that has been applied to the relevant designated sites fundamentally undermines the validity of the constraints mapping.</p>
Marine Conservation Zones	X	As above for designated sites.
MoD PEXAs: other areas	X	All of these factors are appropriate to consider as “other” constraints. However, please see above our significant concerns regarding the lack of transparency regarding the individual weightings applied and associated justifications.
NATS radar areas. Assumes a 200m blade tip which is the largest structure for which safeguarding maps are available.	X	
Helicopter Main Routes (HMRs). Helicopter main routes have been established from heliports to certain offshore installations. These have no statutory basis but CAA guidelines (CAP764) indicate	X	

Constraint	Wind	SPR Comments
that there should be no obstructions 2nm either side of the routes. Routes are located in the southern, central and northern North Sea, and Morecambe Bay. These are considered “other” constraints as consultation to date has allowed for development within their boundaries.		
Offshore mine lease areas	X	
Disposal sites. The level of constraint posed by these sites will vary considerably depending on their former and current use.	X	
Statutory Port Limits	X	
Areas of higher intensity fisheries (identified on the basis of VMS data covering the years 2014-2017) and a comparison with fisheries AIS data (2017). VMS data is only mandatory for vessels over 12m in length, and therefore activity of smaller vessels operating inshore is likely to be under-represented in these data. AIS data is mandatory for all commercial fishing vessels, but similarly will not capture smaller inshore fisheries	X	<p>To maximise prospects for sectoral coexistence it is appropriate that fisheries considerations are taken account of from the outset of leasing processes, including in any front-end constraints mapping to inform future TCE leasing rounds. Taking account of robust fisheries activity data in the identification of leasing areas should act to reduce complexities and potential tensions during subsequent consenting and development processes. We therefore welcome, in principle, the use of VMS data as a proportionate approach to considering fisheries interests within the OESEA4 constraints mapping.</p> <p>Notwithstanding our support for the use of VMS data, please see above our significant concerns regarding the lack of transparency regarding the individual weightings applied and the absence of any supporting justifications. These concerns apply equally to the (presently unknown) weighting assigned to areas of higher fisheries intensity within the Southern North Sea.</p>
Visibility from landscape designations (Areas of Outstanding	X	As above for designated sites.

Constraint	Wind	SPR Comments
<p>Natural Beauty, Heritage Coasts, World Heritage Sites and National Parks, after TCE 2018, noting the limitations cited therein and in MMO 2017), and distances at which a low magnitude of effect may occur for high sensitivity seascapes (after White Consultants 2020).</p>		

4. SEA Outcomes and Recommendations

Before turning to address the proposed OESEA4 recommendations listed in Section 6 of the ER, we firstly wish to comment on the intended role of outcomes from OESEA4 in the spirit of seeking to maximise the value of this process for policy development.

OESEA3 previously concluded with the publication of a Post Consultation Report, which only provided only high-level responses to consultation responses and offered some technical clarifications, without confirming a finalised set of SEA recommendations (policy or spatial) or explaining how such recommendations would be implemented. It is therefore not clear whether or how the recommendations from OESEA3 informed subsequent policy development and implementation, including in respect of offshore wind leasing activities undertaken by TCE.

We are pleased to note that the General Information section at the start of the ER indicates that, in accordance with core SEA requirements, a full Post Adoption Statement will be prepared at the end of the OESEA4 process. To comply with the statutory requirement for this Statement to detail “*how environmental considerations have been integrated into the plan/programme*”, we respectfully suggest it will be necessary for such a Statement to:

- Provide a final version of each sectoral ‘plan’ presently set out in draft form within the ER, including in respect of offshore wind deployment; and,
- Confirm a final suite of all associated OESEA4 recommendations, including their intended delivery mechanisms.

This will be essential to maximise the value of OESEA4 for policy development across Government and to enable key findings in respect of future leasing to be addressed by TCE. A key outcome of OESEA4 should be confirmation of a suite of finalised recommendations to both implement the finalised offshore wind deployment plan and to take forward associated environmental measures. If OESEA4 was to conclude with only the publication of a limited Post Consultation Report as per OSEA3, without confirming a full suite of finalised plans and recommendations, this would be a missed opportunity to inform policy development and implementation.

In respect of the proposed OESEA4 recommendations detailed in Section 6 of the ER, we strongly welcome and support the headline recommendation confirming the need for TCE to progress further offshore wind leasing rounds. In principle we also agree that future leasing rounds should be guided by robust spatial analysis to ensure the avoidance of likely significant adverse effects when assessed at a strategic scale. However, as detailed in Section 3 – Spatial Analysis above, we cannot support the use of the offshore wind constraints & opportunities maps as drafted within the ER owing to significant methodological concerns, principally a lack of transparency regarding the individual weightings which have been applied to “other” constraints. Other issues identified in the review of hard and other constraints provided in Table 1 also need to be resolved. SEA caselaw dictates that if the constraints and opportunities mapping is to be used to inform policy development and to spatially guide future TCE leasing then a further consultation will need to be held prior to this mapping being finalised.

In respect of spatial consideration recommendation 3, which indicates that the Southern North Sea Offshore Wind Forum (SNSOWF) should update cumulative navigational effect studies previously undertaken in 2011 and 2013, we can confirm this recommendation has been noted by SNSOWF, of which SPR is an active member and current chair. The recommendation will be considered further by SNSOWF following finalisation of all OESEA4 recommendations.

As detailed in Section 1 – Draft Plan above, we suggest that some additional OESEA4 recommendations should be devised to guide future TCE leasing activities. To enhance visibility



of leasing opportunities and increase transparency within leasing processes, we suggest that additional OESEA4 recommendations should direct:

- TCE to prepare a long-term offshore wind leasing strategy, setting out their proposed approach, phasing and considerations for leasing rounds to meet deployment needs up to 2050 (i.e. pursuant to net zero target);
- TCE to adopt a spatially-led approach to future leasing rounds, underpinned by timely and robust plan-level assessments; and,
- TCE to commission an independent review of the effectiveness of Round 4 leasing arrangements, with any lessons from this implemented in future leasing rounds.

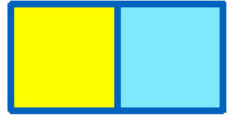
Appendix 1: Section 3 – Ecological Consequences of *Displacement of RTD in the Outer Thames Estuary SPA - Update* ('the RTD Report')





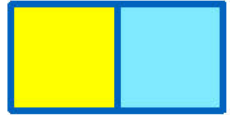
3 Ecological consequences of displacement

61. In order for an individual bird to be affected negatively as a consequence of being displaced by a windfarm there needs to be a cost to that individual (in terms of energy) that it would not have otherwise experienced. If displacement incurs no additional costs (in terms of a change to the individual's survival or reproduction prospects) then arguably the displacement is of no consequence. However, it is possible in the latter case that, while the displaced individual does not experience an additional cost, there is a knock-on effect on one or more other individuals due to the presence of the displaced individual, and those individuals have raised costs. It is through such interactions between individuals that the potential for an effect on the population may occur.
62. For wintering seabirds, such as red-throated divers in the southern North Sea, additional costs as a result of displacement might be expected due to:
 - Exclusion from preferred foraging areas (i.e. ones with preferred prey species, or higher densities of prey);
 - Increased densities in areas outside windfarms resulting in elevated competition in those locations for finite prey resources; or
 - Increased vigilance due to higher densities or displacement into regions subject to other sources of displacement (e.g. shipping lanes) resulting in reduced time available for foraging.
63. Nonbreeding red-throated divers tend to occur at relatively low densities (typically less than 4 birds/km²) and not in large aggregations (Dierschke et al. 2017). Therefore, in the absence of highly aggregated regions for this species, it appears unlikely that existing or planned windfarms occupy sites of particular importance for this species (i.e. red-throated diver distributions do not indicate the existence of sites of particular importance, evidenced by the fact that the coastline from Yorkshire to Kent is designated as SPAs for this species). Hence, the first mechanism above (exclusion from preferred foraging areas) is not considered to be applicable. It should also be noted that when foraging, red-throated divers show a clear preference for sea depths less than 20m (Duckworth et al. 2020), while the part of the SPA adjacent to East Anglia ONE North consists of depths between 30m and 50m. Therefore, the area of current focus would appear to be of low value as foraging habitat.
64. During the nonbreeding period, red-throated divers are highly mobile (Dorsch et al., 2020; Duckworth et al., 2020). In some instances, home ranges of many



thousands of square kilometres have been demonstrated (Nehls et al., 2018). This implies that following displacement, red-throated divers will be able to find alternative foraging sites, in some cases distant from the original area of displacement, which may be part of their existing non-breeding season range. Therefore, it appears that individuals of this species would be able to respond to increased competition and resultant reduced prey intake (if it occurred) by moving to alternative locations, thereby ameliorating the effect. In addition, a wide range of fish are preyed upon, including sandeel, sprat, flatfish, herring and members of the cod family (McGovern et al., 2016, Guse et al., 2009) Hence, it is considered that the second mechanism above (elevated densities leading to increased competition) also does not apply.

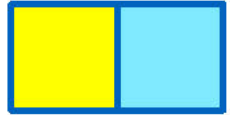
65. The final mechanism (increased vigilance leading to lower food intake and raised energy expenditure) rests on the premise that nonbreeding red-throated divers are operating close to a sustainable threshold. That is, the birds need to spend a significant part of each day during the winter foraging in order to obtain enough prey to maintain themselves and retain sufficient reserves for migration and breeding. A project combining geolocator tags and time-depth recorders (TDR) on this species is underway which aims to shed light on these questions (O'Brien et al. 2018). Preliminary outputs from this work have found that tagged birds spent 3-5 hours foraging per day during the non-breeding season (Duckworth et al. 2020). Although this has not yet been translated into energetic costs, these results do strongly indicate that red-throated divers have time available to increase foraging effort should their prey intake rate be reduced following displacement.
66. There is evidence that seabirds tend to be heavier in winter than during the breeding season (e.g. Coulson et al. 1983). It is reasonable to infer from this that most seabirds have relatively little difficulty in finding enough food during the nonbreeding season so can achieve higher body condition that buffers against short periods of adverse weather conditions. For example, puffins are 20-30% heavier in winter than in summer as a result of storing fat during the nonbreeding season, and the same is true of guillemots (Anker-Nilssen et al. 2018). If the same pattern occurs in red-throated divers, which is likely given their ecology and is supported by the tagging work to date (Duckworth et al. 2020), an implication is that their body condition would not be greatly affected by plausible levels of displacement or disturbance, since (as noted above) their time budgets do not appear to be constrained during this period.
67. The annual mortality of adult red-throated divers is around 16% per annum (Horswill and Robinson 2015) and this will include mortality (if any) caused by human disturbance in marine environments that has been occurring for decades. The amount of general ship traffic has increased up to the present time, but has



been high since the 1950s (IMO, Oskin 2014), while numbers of fishing vessels increased during the early 20th century but have decreased slightly in recent decades (Uberoi 2017). It is known that red-throated divers often tend to fly off when an approaching ship is about 1-2km away (Schwemmer et al. 2011). There is a case to be made that the net energy costs of flying away from approaching ships (and consequent loss of foraging time and opportunity) is likely to be considerably greater than the energy cost of avoiding static structures such as offshore wind turbines.

68. All offshore windfarms in UK North Sea waters combined, represent an extremely small fraction of potential foraging habitat of red-throated divers within UK North Sea waters. Therefore, it would seem appropriate to assess the plausible additional mortality caused by offshore windfarm displacement, barrier effects and associated increases in shipping traffic (both during construction and operation) as also being extremely small in relation to the existing total annual mortality (also given that this total annual mortality already includes any impact of existing (baseline) ship disturbance impacts: in 2012 an average of 86 vessel transits were identified by Automated Identification System data per day⁴ in the waters off East Anglia; MMO 2014).
69. In this context, to suggest that displacement from an offshore windfarm might add up to 10% to the baseline mortality for all individuals that are displaced (the upper value advised by Natural England) is inconsistent with a total annual mortality of red-throated diver adults of only 16%.
70. The potential for displacement to result in a population level effect on migrant species such as red-throated diver depends on the relative degree of regulation on the breeding and nonbreeding area. The population will be constrained by whichever area imposes the stronger regulation.
71. The evidence strongly indicates that red-throated divers are limited by competition for safe breeding sites within range of foraging waters (Merrie 1978, Nummi et al. 2013, Rizzolo et al. 2014, Dahlen and Eriksson 2016), but they are unlikely to be in competition for resources during the nonbreeding season (Dierschke et al. 2012, 2017). Therefore, the population will only be regulated by effects in the nonbreeding areas if habitat subject to displacement was so extensive, and the nonbreeding population density increased so much, that interference competition or prey depletion became a driving factor which exceeded that due to limited breeding habitat.
72. The most likely consequence is that displacement of red-throated divers will have effects which are too small to detect, as they are unlikely to be subject to density-

⁴ Note these data excluded commercial vessels less than 300 tonnes, recreational vessels, fishing vessels and military and government vessels on deployment.



dependent competition for resources during the nonbreeding season (Dierschke et al. 2017). Even though there are now many offshore windfarms in the southern North Sea and in the Baltic, the total area of these represents a very small fraction of the habitat used by nonbreeding red-throated divers throughout the southern North Sea and Baltic, so that the cumulative area of the SPA subject to displacement for red-throated divers is very small. The increase in density of red-throated divers caused by displacement away from offshore windfarms will therefore be extremely slight at the regional or biogeographic scale. However, the proportion of habitat subject to displacement may be much higher over certain small areas. For example, Mendel et al. (2019) estimated that displacement from offshore windfarms in the German Bight results in an effective area subject to displacement of 8.8% of the Eastern German Bight SPA habitat for these birds. However, it is important to note that while the Eastern German Bight SPA boundary reflects historical distributions of red-throated divers, it does not necessarily follow that this represents the actual extent of suitable habitat in the area, and this applies equally to other red-throated diver SPAs including the Outer Thames Estuary SPA. So, displacement may move a proportion of birds out of the SPA, but this does not necessarily mean they will no longer be able to forage successfully and that there will be a resultant population level effect.

73. The available evidence suggests that the most likely result of displacement is that there will be little or no impact on adult survival, and that any impact would probably be undetectable at the population level. Indeed, there is very little evidence to support the upper range of mortality effects for displaced birds advised by Natural England (e.g. up to 10%), and on the basis of a review of the studies (Vattenfall 2019), even an additional mortality rate of 1% is considered precautionary.



27 May 2022

REF: UK Offshore Energy Strategic Environmental Assessment 4 (OESEA4)

To whom it may concern,

On behalf of the EnerGeo Alliance, this consultation response has been prepared in order to highlight our views in relation to the recommendations of the OESEA4 Environmental Report.

About the EnerGeo Alliance

Founded in 1971, the EnerGeo Alliance is a global trade association for the energy geoscience industry, the intersection where earth science and energy meet. Providing solutions to revolutionize the energy evolution, the EnerGeo Alliance and its member companies span more than 50 countries, representing onshore and offshore survey operators and acquisition companies, energy data and processing providers, energy companies, equipment and software manufacturers, industry suppliers, service providers, and consultancies. Together, our member companies are the gateway to the safe discovery, development, and delivery of mainstay sources of energy, alternative energy, and low-carbon energy solutions that meet our growing world's needs.

Through reliable science- and data-based regulatory advocacy, credible resources and expertise, and future-focused leadership, the EnerGeo Alliance continuously works to develop and promote informed government policies that advance responsible energy exploration, production, and operations. As the global energy demand evolves, we believe

OFFICE ADDRESS



Energy Starts Here™

that all policymakers and energy companies, providing mainstay, alternative, and low-carbon solutions, – should have access to reliable data and analysis to support their forward moving efforts.

Background Summary

The work of member companies of the EnerGeo Alliance encompasses services of relevance to all of the elements of the draft plan/programme, from Oil & Gas licensing to the development of the broad range of Offshore Renewable Energies (OREs), Carbon Capture, Usage and Storage (CCUS) and Hydrogen. The work of members has been critical in unlocking the potential of the UKCS, providing data to identify and de-risk the wealth of oil and gas assets that have been developed since the 1970s. Member companies have invested billions of pounds in the acquisition of data, as well as in the development of technologies to improve data quality and the efficiency of surveys. That investment has been made on the basis of a strong and stable investment environment, with regular licensing rounds continuing to stimulate interest in the acquisition and reprocessing of geophysical data. The continued work of member companies remains crucial to both the security of supply within the energy sector, as well as in working toward the commitments of net zero. The surveys undertaken by members provide critical data for understanding the subsurface, whether for identifying hydrocarbon resources, identifying and monitoring carbon storage locations, or planning for the safe location of critical infrastructure from wind turbine generators (WTGs) to cables and pipelines.

The EnerGeo Alliance acknowledges the commitments made by the UK in terms of the Nationally Determined Contribution (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC)¹ and the UK's goal of reaching 'Net Zero' emissions by 2050². The EnerGeo Alliance supports the steps taken by what is now the North Sea Transition Authority (NSTA), to embed the net zero goal within the Central Obligation of the NSTA Strategy³, as well as the recently agreed North Sea Transition Deal (NSTD)⁴, committing industry to significant emissions reductions targets for the upstream sector. We have separately responded to the consultation related to the Climate Compatibility Checkpoint Tests being formulated in relation to future seaward licensing rounds for oil and gas.

¹ United Kingdom of Great Britain and Northern Ireland's Nationally Determined Contribution.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/943618/uk-2030-ndc.pdf

² UK becomes first major economy to pass net zero emissions law. <https://www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law>

³ The OGA Strategy. <https://www.nstaauthority.co.uk/media/7105/the-oga-strategy.pdf>

⁴ North Sea Transition Deal.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/972520/north-sea-transition-deal_A_FINAL.pdf



EnerGeo Alliance members are taking various steps to measure, report and reduce greenhouse gas (GHG) emissions and develop efficient means of acquiring and delivering the necessary subsurface data across the UKCS⁵.

The acknowledgment of the continued need for hydrocarbons within the Environment Report is noted, and we would like to take this opportunity to reiterate that following the commitments made by industry through adherence to the NSTA Strategy and the North Sea Transition Deal (NSTD), continued exploration can be compatible with net zero goals, while facilitating the investment necessary to advance the broader decarbonisation of the UK's energy system. We note that the commitments to energy security, as well as transition have been reiterated within the recently published British Energy Security Strategy⁶. The commitment within this to a licensing round to be held in the autumn of 2022 is welcomed, subject to the completion of the current OESEA4 process.

The ability to produce hydrocarbons domestically, under the strong environmental framework that the UK has, means that fuels of a lower carbon intensity are produced than may otherwise be imported⁷. The broader context of the UK's energy policy provided in the Environmental Report is welcomed, and as highlighted here, data provided by members of the EnerGeo Alliance are integral to the delivery of each type of offshore energy development covered by OESEA4, as well as in facilitating CCUS. The latter is likely to require significant work in characterising potential storage facilities within candidate geological formations, as well as general monitoring activities to ensure that carbon remains locked within geological storage. Seismic and gravimetric survey technology have been proven as reliable in long-term monitoring of an existing CO₂ storage site offshore Norway⁸.

For the activities provided for under the OESEA4, EnerGeo Alliance members are primarily active during the 'Exploration and appraisal' phase for oil and gas activity (including gas and carbon dioxide storage), and during the 'Site prospecting/selection' phase for ORE developments. A wide range of geophysical technologies are applied, depending on the type of information required about the seabed and/or subsurface, and to what depth that information is required. These can include, but not be limited to; high-resolution geophysical surveys (utilising sidescan sonar, multibeam echosounders, sub-bottom profilers), magnetic

⁵ [Greenhouse Gas \(GHG\) Emissions from Marine Geophysical Operations.](#)

⁶ British Energy Security Strategy.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1067384/British_Energy_Security_Strategy.pdf

⁷ Global carbon intensity of crude oil production. <https://www.science.org/doi/10.1126/science.aar6859>

⁸ 20 years of monitoring CO₂-injection at Sleipner. <https://www.sciencedirect.com/science/article/pii/S1876610217317174>

and gravimetric surveys, controlled source electromagnetic (CSEM) surveys, seismic surveys (2D, 3D and 4D monitor/life of field) and ocean bottom techniques.

As the Environmental Report notes in the summary, some of these activities produce underwater sound, with the potential to impact upon marine life if not properly mitigated. Since their introduction in 1995, EnerGeo Alliance members have been implementing the Joint Nature Conservation Committee (JNCC) '*Guidelines for minimising the risk of injury to marine mammals from geophysical surveys*'⁹ during the course of operations. With human safety and environmental stewardship at the heart of all marine operations, geophysical surveys remain a safe and repeatable activity that has been carried out globally for over 50 years with no long-term population-level impacts upon marine species or the environment. Industry, including the EnerGeo Alliance, has funded over \$60 million in research via the Sound and Marine Life Joint Industry Programme (SML JIP). Founded in 2004, the SML JIP regularly funds independent studies that are published in peer reviewed literature. An extensive list of independently reviewed published literature supported by JIP funding is available here: <https://gissserver.intertek.com/JIP/dmsJIP.php>.

Environmental Report

Noise

The Environmental Report provides a good summary of seismic survey techniques and the issues associated with back calculating the acoustic output from distributed sources. While the acoustic signal from pneumatic sources does contain energy at high frequencies as detailed in the report, this is at significantly lower amplitudes than the dominant frequencies within the pulse from a typical seismic source array. Approximately 95% of the energy contained within a seismic signal is at frequencies below about 500 Hz as energy is concentrated at the frequencies of most use in achieving the relevant geophysical objectives. High-frequency sound also attenuates much more quickly than low frequency sound due to factors including absorption. A number of industry players have developed alternative marine seismic sources that aim to limit the bandwidth of the pneumatic source, increasing low-frequency performance and in some cases extending the low-frequency

⁹ JNCC guidelines. <https://data.jncc.gov.uk/data/e2a46de5-43d4-43f0-b296-c62134397ce4/jncc-guidelines-seismicsurvey-aug2017-web.pdf>

range, while reducing the higher frequency output and associated potential for environmental impacts^{10,11,12}.

In addition to limiting the bandwidth of sources, the way in which seismic sources are configured and activated has evolved in recent years. Traditionally, seismic sources are made up of dual arrays, activated alternately in what is termed 'flip-flop' mode, with an acoustic signal every ~10-12 seconds. Increasingly, there is a shift toward using multiple sources, with triple and quintuple sources common, as well as the coded activation of multiple individual source elements in a randomised activation pattern. Termed 'blended' or 'simultaneous' acquisition, such methods provide greater spatial resolution in the resultant image of the subsurface and can increase efficiency through facilitating larger receiver spreads to be deployed, resulting in less line kilometres being sailed per square kilometre of data acquired. The use of multiple smaller sources means reduced peak sound pressure levels (SPL) and sound exposure levels (SEL), but with reduced time between each acoustic signal^{13,14}. Further developments are progressing in relation to the use of marine vibrators as alternative sources, though these remain largely at the research and development stage for large scale surveys.

Marine Mammals

As the Environmental Report notes, there is significant variability in the responses of marine mammals to acoustic stimuli such as seismic sources, with various short-term behavioural responses noted. However, no long-term population level changes have been observed, indicating that such short-duration, transient activities are highly unlikely to cause habitat displacement. Operational procedures⁹ are applied as highlighted earlier, and in depth within the Environmental Report. These include longer monitoring periods in water depths greater than 200m, due to the likelihood of encountering deep-diving species including beaked whales. It is noted that the Environmental Report suggests that further mitigation measures should be introduced for beaked whales in order to minimise any risk of behaviourally mediated damage. While the potential for high-powered military sonar to

Sound & Marine Life Reference Library. <https://gissserver.intertek.com/JIP/dmsJIP.php.org/content/journals/10.3997/1365-2397.fb2021088>

¹¹ Enhanced Low Frequency Signal-To-Noise Characteristics of an Airgun Technology Based Source. <https://www.earthdoc.org/content/papers/10.3997/2214-4609.202034006>

¹² Reducing environmental footprint from a new air gun design. <https://library.seg.org/doi/10.1190/sbgf2017-312>

¹³ The Future of Marine Seismic Acquisition. <https://www.geoexplor.com/articles/2019/05/the-future-of-marine-seismic-acquisition>

¹⁴ Methodology utilizing continuous source and receiver wavefields – signal to noise ratio considerations. <https://www.earthdoc.org/content/papers/10.3997/2214-4609.201901132>

impact these species is acknowledged, the EnerGeo Alliance is unaware of any evidence to suggest that low-frequency sources such as seismic source arrays may result in similar consequences for these or other species and query the apparent need for further mitigation in this regard. Again, the dominant frequencies within a seismic pulse are below the hearing sensitivity of beaked whales. As the Environmental Report recommends enhancing mitigation measures currently implemented by the JNCC, the EnerGeo Alliance recommends that a thorough review of the evidence base be made available along with a consultation exercise prior to any potential changes to those mitigation measures.

The Environmental Report goes on to conclude on the risk of injury from underwater noise that, as with previous SEAs, current mitigation measures when carefully applied are deemed sufficient in reducing the risk of injury to negligible levels. That position is supported by the EnerGeo Alliance, based on the available scientific evidence, and as a pragmatic way forward.

In relation to disturbance, the application of Effective Deterrent Radii (EDRs) within Special Areas of Conservation (SACs) established for harbour porpoises is something that the EnerGeo Alliance has commented on previously. The application of the EDRs within the SNCB noise guidance has drawbacks as there is no 'one size fits all' for activities that may have sources for which there is much lower output than that detailed within the limited evidence base for seismic surveys within the SNCB guidance document. There is also no consideration for the temporal occurrence of source activity, which may be limited within the SAC on a given day. It is acknowledged that further work is being undertaken within the Offshore Wind Enabling Action Programme to review the EDRs, and the EnerGeo Alliance has provided some input in relation to evolving source technologies and the ways in which sources are operated, such that it may be considered as part of that review. Lastly, we support the development and application of modelling frameworks, both 'Population Consequences of Acoustic Disturbance' (PCAD) and 'Population Consequences of Disturbance' (PCoD), as appropriate means to evaluate the behavioural disturbance at biologically meaningful levels.

Report Recommendations

The UK objective of security of supply in relation to energy is acknowledged and supported by the EnerGeo Alliance, and we again acknowledge the British Energy Security Strategy⁶,

published subsequent to the launch of the present OSEA4 consultation. In identifying alternatives to the draft plan/programme, we are most supportive of Alternative 2, being “To proceed with a leasing and licensing programme”. The EnerGeo Alliance notes that the conclusion of the Environmental Report is that Alternative 3 is the preferred option, being “To restrict the areas offered for leasing and licensing temporally or spatially”. We appreciate that the anticipated policy outcome is intended as being similar to Alternative 2, though with a consequent restriction on the available resource area, and therefore potential impact on the overall policies relating to both security of supply and decarbonisation.

A key issue to note is the potential for increased competition for space between sectors in an increasingly congested maritime zone, which the Marine Spatial Prioritisation Programme aims to balance. This will require significant cross-agency cooperation given the separate licensing regimes for energy developments including oil and gas and offshore wind. While energy integration initiatives such as the ‘Innovation and Targeted Oil and Gas Decarbonisation’ (INTOG)¹⁵ process are positive, we believe greater levels of integration will be necessary to avoid conflicts and the risk of lost opportunities through one development limiting access to another, such as in a recent example related to CCUS and offshore wind¹⁶. Industry remains committed to ensuring that activities are undertaken with due respect for the rights of other maritime stakeholders, respecting also that there are multiple objectives which need not be mutually exclusive. As indicated in the Environmental, spatial restrictions based on the implementation of ‘highly protected marine areas’ (HPMAs) may preclude development, and as such, it is imperative that information be made available at the earliest opportunity in order for industry to participate in any consultation process that may be launched, and to evaluate the potential impacts upon investment related to, for example, the planned oil and gas licensing round due to be launched later this year. It should be noted that as geophysical surveys do not physically impact the marine environment, and have not been shown to result in long-term, population-level consequences for marine species, that as with other MPAs, the continued use of non-invasive survey methodologies should be permissible where necessary for activities which may include, but not be limited to the monitoring of underlying carbon storage locations, should they be coincident with HPMA siting.

As noted earlier in our response, the sensitivity of beaked whale to underwater noise is acknowledged. However, the reference to enhanced mitigation measures for activities

¹⁵ Innovation and Targeted Oil and Gas Decarbonisation. <https://marine.gov.scot/data/sectoral-marine-plan-offshore-wind-innovation-and-targeted-oil-and-gas-decarbonisation-intog>

¹⁶ Plans clash in UK waters. <https://www.offshorewind.biz/2022/03/17/orsteds-offshore-wind-and-bps-ccus-plans-clash-in-uk-waters/>

which have not been shown to impact those species is questioned, particularly as the primary frequency of sounds produced by seismic surveys is below the hearing sensitivity of those animals.

We note that subsequent to the launch of the OESEA4 consultation, that the Energy Security Strategy has confirmed that a licensing round for oil and gas is now planned to be launched in the autumn of 2022. We understand that this will be subject to the climate compatibility checkpoint test (once finalised), while also balancing security issues and the objective of phasing out Russian oil (as well as coal) by the end of 2022 and imports of Russian LNG imports as soon as possible thereafter^{Error! Bookmark not defined.}.

Appendices

Population & Human Health

While the global population growth rate continues to fall, the overall population is predicted to be 9.7 billion by 2050, an increase of 2 billion from 2019¹⁷. With growing population comes growing demand for energy, with some predicting a ~15% increase by 2050¹⁸. Significant demographic differences exist and will continue to be evident, with energy efficiencies in the Global North likely to lower per capita energy use, while demand from the Global South where a lack of access to energy remains a persistent issue will increase, linked to increasing living standards¹⁸. On a national level, the UK population also continues to grow and according to the Office for National Statistics (ONS), is predicted to reach 72 million people by the middle of 2041, up from 66.8 million in 2019¹⁹. Population growth places additional demands on our energy system, which requires a mix in order to be resilient to global factors such as geopolitical tensions, to cope with the intermittency of renewable sources and to provide affordable energy to the general population. The draft plan/programme therefore has a key role to play in providing the relevant societal needs, with the importance of a secure, domestic supply highlighted in the latest strategy document^{Error! Bookmark not defined.}.

Facilitating energy developments through implementation of the draft plan as stated, will, as the report highlights, contribute to maintaining investment across the UK's energy

¹⁷ IEA World Population Growth. <https://ourworldindata.org/world-population-growth>

¹⁸ ExxonMobil Outlook for Energy. <https://corporate.exxonmobil.com/Energy-and-innovation/Outlook-for-Energy>

¹⁹ Overview of the UK population: January 2021.

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/articles/overviewoftheukpopulation/january2021>

system and have positive benefits for the population as a whole through the provision of a secure low-carbon energy supply, increased carbon reduction through CCUS as well as supporting highly skilled employment opportunities.

Other Users

The EnerGeo Alliance recognises that parts of the UKCS have significant spatial challenges relating to access to the sea surface and seabed by myriad users including the fishing industry, offshore wind industry, recreational users, marine aggregate industry, the military as well as exploration and production companies and those with an interest in natural gas and carbon dioxide storage. The need to strike a balance in terms of access, based on factors including energy security, net zero, as well as requirements for raw materials, a productive fisheries sector as well as nature conservation is acknowledged. The EnerGeo Alliance is an active participant in the dialogue being led by DEFRA within the Marine Spatial Prioritisation Programme, and we look forward to productive discussions going forward on how to effectively prioritise access for the broadest benefit of stakeholders.

Cultural Heritage

Geophysical surveys are an integral part of identifying marine archaeological sites and facilitating research into our shared cultural heritage²⁰. A range of geophysical survey techniques provide the benefit of being non-invasive, so as to not disturb artefacts while providing significant detail about shipwrecks, wartime artefacts such as downed planes and submerged landscapes such as Doggerland²¹. The data acquired by members of the EnerGeo Alliance is essential in evaluating cultural heritage assets, particularly prior to the installation of energy-related infrastructure.

Stakeholder Workshops

The EnerGeo Alliance notes that stakeholder workshops were conducted in order to discuss a range of issues including the evidence base for the conservation status of sites,

²⁰ Historic England. <https://historicengland.org.uk/images-books/publications/marine-geophysics-data-acquisition-processing-interpretation/mgdapai-guidance-notes/>

²¹ In Sight of Doggerland. https://intarch.ac.uk/journal/issue22/fitch_index.html

the understanding of the effects on species from activities, emerging issues and technologies, spatial constraints and more. As a key stakeholder involved at an early stage of both hydrocarbon and renewable energy developments, as well as in the characterisation and monitoring of carbon storage facilities, it would be beneficial to be able to participate in similar events going forward. While it is noted that other trade associations were present, the EnerGeo Alliance is the only trade association representing the wider energy geoscience industry.

Summary

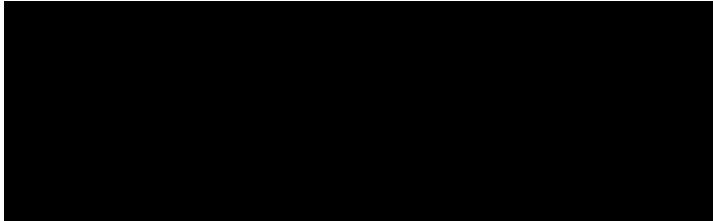
The EnerGeo Alliance applauds the pragmatic approach being taken overall in relation to the draft plan/programme in order to facilitate the UK Government's energy policy, including maintain exploration and production for hydrocarbons, while working to decarbonise the sector in line with those commitments made under the NSTA Strategy³ and the NSTD⁴. The expansion of CCUS leasing, offshore renewables as well as hydrogen are all key to a diversified, resilient energy system, as well as one that is capable of achieving the net zero target committed to by the UK. In developing those energy resources, detailed subsurface data is critical to assessing resource potential, understanding the migration of fluids within reservoirs as well as the design parameters for the placement of infrastructure.

The Environmental Report has provided comprehensive baseline information regarding the species and habitats that may be impacted by different aspects of the draft plan/programme. The preferred Alternative concluded within the report provides for a balance between the requirement of the plan, and nature conservation objectives. Acknowledging the need to safeguard the marine environment, we wish to highlight again that geophysical operations are a temporary, transient activity, with no physical impact on the marine environment, with the exception of those surveys which may place seismometers on the seafloor for brief periods. As the Environmental Report outlines, current mitigation in place for underwater noise is sufficient to reduce the risk of injury to marine mammals to negligible levels. In the conduct of all activities, EnerGeo Alliance members take all aspects of health, safety and environment very seriously and seek continual improvement. We believe that both geophysical operations, and the energy developments that the acquired data underpin can coexist with healthy marine environments within the strong regulatory framework established on the UKCS.



We appreciate the opportunity to respond to the consultation and remain available to provide any further information or clarification as may be appropriate.

Sincerely,



Vice President, Global Policy & Government Affairs

From: Environment [REDACTED]
Sent: 27 May 2022 14:41
To: Offshore Energy Strategic Environmental Assessment [REDACTED]
Subject: Consultation reference: OESEA4 Environmental Report

Hi

I'd like to represent the Port of London Authority to respond to this consultation. Please see below for our comments

General

- It is a very comprehensive assessment and report. However, ammonia has been recognised as one of the zero emission fuel. Would the production, i.e. ammonia plants coupled with an offshore windfarm, or storage or transport of green ammonia be assessed in the future?

5.11 Air Quality

- The analysis suggested the major source of air pollutants is from the supply vessels, would the use/promote of lower emission fuel, such as HVO or GTL, be considered as a short-term mitigation measure? For the development that in closer proximity to the coast, i.e. wave and tidal, there are potential to switch to zero emission vessels in mid-term.

Kind regards

[REDACTED]

Environment

Port of London Authority

T:

Follow us at @LondonPortAuth

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you are not the intended recipient, you are hereby notified that any use or dissemination of this communication is strictly prohibited, and asked to notify us immediately (by return email), then delete this email and your reply. Email transmissions cannot be guaranteed to be secure or error-free and Port of London Authority (PLA) does not accept any liability for any errors or omissions in the contents of this message. Any views or opinions presented are those of the author and do not necessarily represent those of PLA.

From: [REDACTED]
Sent: 30 May 2022 08:57
To: Offshore Energy Strategic Environmental Assessment [REDACTED]
Cc: [REDACTED]
Subject: SV: UK - Offshore Energy Strategic Environmental Assessment (OESEA4) - Environmental Report

The Norwegian Environment Agency have consulted relevant authorities and the public on the Offshore Energy Strategic Environmental Assessment (OESEA4) - Environmental Report.

There are no comments from Norway.

Best regards,

[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]
[REDACTED]



www.environmentagency.no | www.environment.no

[REDACTED]

From: [REDACTED]
Sent: 02 June 2022 06:21
To: Offshore Energy Strategic Environmental Assessment [REDACTED]
Cc: [REDACTED]
Subject: SV: UK - Offshore Energy Strategic Environmental Assessment (OESEA4) - Environmental Report

Dear Sirs;

Due to delays in our file handling system, I seem to have overlooked one response regarding the Offshore Energy Strategic Environmental Assessment.

The Norwegian Coastal Administration wants to point out that sailing routes for international traffic between Great Britain and other countries must be taken into consideration in the further development of offshore energy. This will be important for ensuring a secure framework for such traffic.

Best regards,

[REDACTED]

Senior adviser II, section for land use planning
Point of contact for the Espoo Convention and the SEA Protocol

[REDACTED]

[REDACTED]



www.environmentagency.no | www.environment.no

[REDACTED]

[REDACTED]
[REDACTED]

Eft. :
Forsvarskommandoen
Forsvarsministeriets Materiel- og Indkøbsstyrelse

Høringsvar – ESPOO høring vedrørende strategisk miljøvurdering (SEA) Storbritanniens Offshore Energy Strategic Environmental Assessment

Forsvarsministeriet Ejendomsstyrelsen har modtaget ESPOO høring vedrørende Høringsvar – ESPOO høring vedrørende strategisk miljøvurdering (SEA) Storbritanniens Offshore Energy Strategic Environmental Assessment

Efter høring af myndigheder under Forsvarsministeriet, skal Forsvarsministeriet Ejendomsstyrelsen oplyse, at der er følgende bemærkninger:

Hensynet til træning med kampfly i Nordsøen:

Der er ca. 100 km fra den engelske EEZ til de danske træningsområder i Nordsøen, hvorfor dansk træning med kampfly i Nordsøen ikke berøres af de engelske vindmølleplaner.

Hensynet til radardækning:

Luftforsvarsradarerne i Karup og Bæk Skov, vil kunne detektere en vindmølle på 300 m i en afstand af maksimalt 100 km fra radarene. De engelske vindmølleplaner vil derfor ikke have indflydelse på danske luftforsvarsradarer.

Forsvarsministeriet Ejendomsstyrelsen har på det foreliggende grundlag ikke bemærkninger til sagen.

Med venlig hilsen

[REDACTED]
Chefkonsulent
Chef for Natur- og Plansektionen

Dato: 25. maj 2022

Enhed: Forvaltningsafdelingen

Sagsbeh.: FES-NPS27

Sagsnr.: 2022/003523

Dok.nr.:

Bilag: Ingen

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
www.forsvaret.dk/fes

EAN: 5798000201286

CVR: 16 28 71 80

Intern fordeling:
CHFVA; CHNPS

Sagsnr.: 2022/003523
Dok.nr.:

Side 2 af 2

Til: [REDACTED]

Fra: [REDACTED]

Titel: Sv: Intern høring: Espoo - høring vedr. strategisk miljøvurdering (SEA) af Storbritanniens Offshore Energy

Strategic Environmental Assessment

Sendt: 26-04-2022 11:27

Kære [REDACTED],

Arter og Naturbeskyttelse har følgende bemærkninger til høringen af UK Offshore Energy Strategic Environmental Assessment 4 (OESEA4):

Den danske enhed for Arter og Naturbeskyttelse, Miljøstyrelsen, har gennemgået det fremsendte materiale for UK Offshore Energy Strategic Environmental Assessment 4 (OESEA4).

Det er Arter og Naturbeskyttelses opfattelse, at der i strategien er behandlet de væsentligste emner for forstyrrelser og skadelige virkninger på fauna fra kommende projekter. Herunder bl.a. kollisionsrisiko ved vindenergianlæg, undervandsstøj samt fysisk forstyrrelse i forbindelse med anlæg og drift.

Arter og Naturbeskyttelse har ingen bemærkninger til den strategiske miljøvurdering, men ønsker at følge den videre proces med miljøkonsekvensvurdering af de konkrete projekter, for at sikre opretholdelse af Danmarks forpligtelser i forhold til EU-direktiverne.

Venlig hilsen

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

75. ADVIES I.K.V. HET MILIEUEFFECTENRAPPORT OFFSHORE ENERGY STRATEGIC ENVIRONMENTAL ASSESSMENT 4 (OESEA4) VAN HET DEPARTMENT FOR BUSINESS, ENERGY AND INDUSTRIAL STRATEGY, IN DE UK

Het College,

Gelet op art. 56 § 2 van het decreet lokaal bestuur;

Gelet op het marien ruimtelijk plan 2020-2026;

Gelet op de mail van Departement Omgeving omtrent de inspraakprocedure van het milieueffectenrapport en het OESEA4-plan van Department for Business, Energy and Industrial Strategy, in de UK die een mogelijke impact kan hebben op ons grondgebied. Het plan betreft onder meer het leasen van hernieuwbare offshore energie, licenties voor offshore olie- en gasexploitatie en -productie en licenties voor de waterstofgas opslag en lossen, CO2-transport en opslag en offshoreproductie en -transport van waterstof;

Overwegende dat het OESEA4 rapport is opgemaakt als deel van het Department for Business, Energy and Industrial Strategy's (BEIS) Offshore Energy SEA programma, in overeenstemming met *Environmental Assessment of Plans and Programmes Regulations 2004* (SEA Regulations), die van toepassing zijn op elk relevant plan of programma dat betrekking heeft op UK; dat dit SEA proces beslissingen helpt nemen over offshore energie licenties en leasing door rekening te houden met de gevolgen van het voorgesteld plan/programma op het milieu;

Overwegende dat het OESEA4-plan als hoofddoel heeft het versterken van de economie van de UK, reduceren van de koolstofemissies en het verzekeren van de energievoorziening, zonder verlies aan biodiversiteit en functioneren van ecosystemen en met behoud van natuur, erfgoed en de gezondheid van de mens. Het plan moet bijdragen aan het Britse beleid inzake de energievoorziening en het behalen van de doelstellingen tot reductie van broeikasgasemissies, namelijk 68% minder broeikasgassen tegen 2030 en klimaatneutraal tegen 2050;

Overwegende dat er een inspraakprocedure gehouden wordt van 17 maart 2022 tot en met 27 mei 2022;

Overwegende dat alle relevante informatie terug te vinden is op volgende website:
<https://www.gov.uk/government/consultations/uk-offshore-energy-strategic-environmental-assessment-4-oesea4>

Overwegende dat volgende zaken onderzocht worden in het rapport en dat hierop een aantal aanbevelingen worden gegeven:

- De productie van geluid als gevolg van mogelijke ontwikkelingen en de mogelijke effecten ervan op zeezoogdieren, vissen en andere organismen zoals vogels. Hierbij werden aanbevelingen met betrekking tot mitigerende maatregelen opgesteld.
- De mogelijke fysieke schade of verandering aan een gebied door mogelijk ontwikkelingen.
- Mogelijke gevolgen van energie onttrekking zoals veranderingen in getijdenregimes of mengen van water kolommen.
- De ecologische implicaties van het fysiek aanwezig zijn van de ontwikkelingen zoals mogelijke collisie van vogels, barrières voor beweging van vissen en vogels en het verstoren van het gedrag van vissen, vogels en zeezoogdieren.
- Mogelijke impact van de fysieke aanwezigheid van de ontwikkelingen op andere gebruikers van de mariene omgeving zoals visserij, scheepvaart, militaire activiteit, luchtvaart, toerisme en recreatie.

- Mogelijke effecten van ontwikkelingen op het zeelandschap inclusief de verandering van het karakter (interacties tussen mensen en activiteiten) en plaatsen (en de natuurlijke en culturele processen die de plaats vorm geven)
- De gevolgen van mogelijke lozingen zoals afvalwater, koelwater, drainage, boorresidu, modder.
- De productie van afval als gevolg van de offshore activiteit die op land verwerkt wordt.
- Mogelijke gevolgen op de luchtkwaliteit door uitlaat emissies van schepen en stroomopwekking, atmosferische emissies, grote gasontsnapping of vluchtige olie lekkage.
- Contributie aan de klimaatverandering en internationale en nationale beleidscontext zoals de bijdrage aan zowel de netto uitstoot als reductie van de broeikasgasemissies.
- Mogelijke 'accidental events' zoals lekkage van olie en chemicaliën, de uitstoot van CO₂ of waterstof

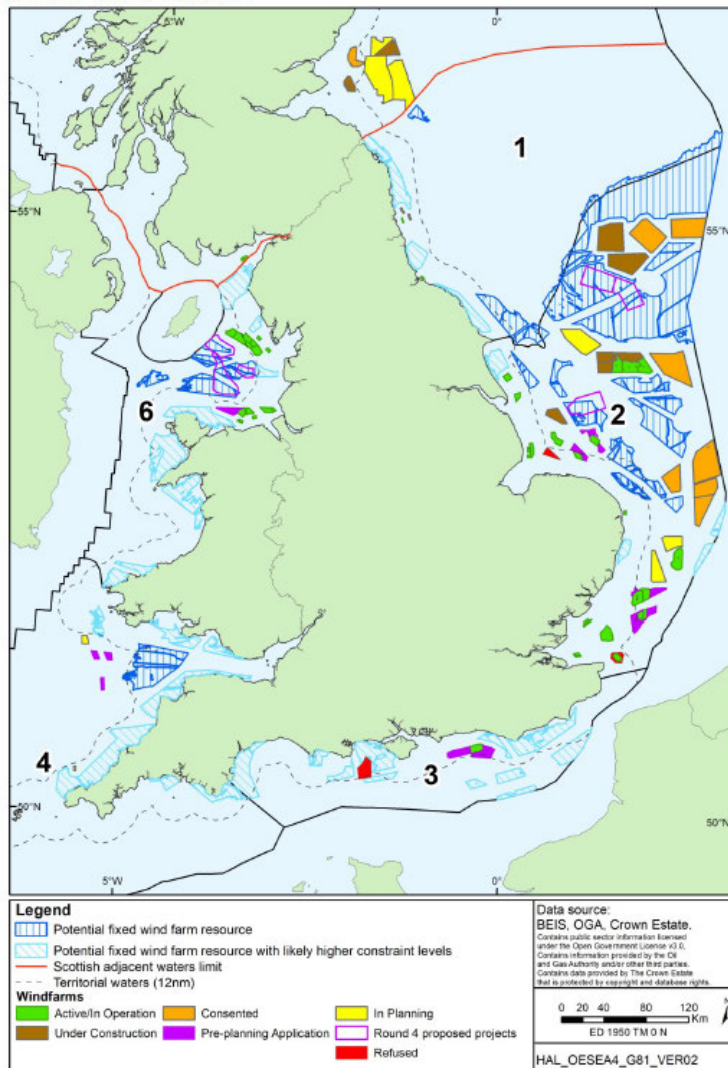
Overwegende dat in 'Regional Sea 2 en 3' (nummer 2 en 3 op onderstaande kaarten) offshore windmolenparken de meest waarschijnlijke bron van hernieuwbare energie is die gebruikt zal worden in de toekomst; dat er tot op heden geen voorstellen gedaan zijn voor dergelijke ontwikkelingen in dit gebied;

Overwegende dat offshore windmolenparken een impact hebben op het landschap; dat recente turbines met capaciteit van 14 MW een hoogte hebben van 260 m en dat deze in de toekomst nog groter zullen worden; dat deze zich dicht bij de kust bevinden op ondiepe stukken van de zee; dat recente ontwikkelingen verder offshore gelegen zijn en dat kostenvermindering in vaste en drijvende funderingen het aantrekkelijker maakt om verder van de kust te bouwen gezien de hogere windsnelheden en minder beperkingen in die gebieden; dat het dieper plaatsen van de windmolens in zee betekent dat deze dichter komen bij de Belgische kust;

Overwegende dat volgende zaken onderzocht werden:

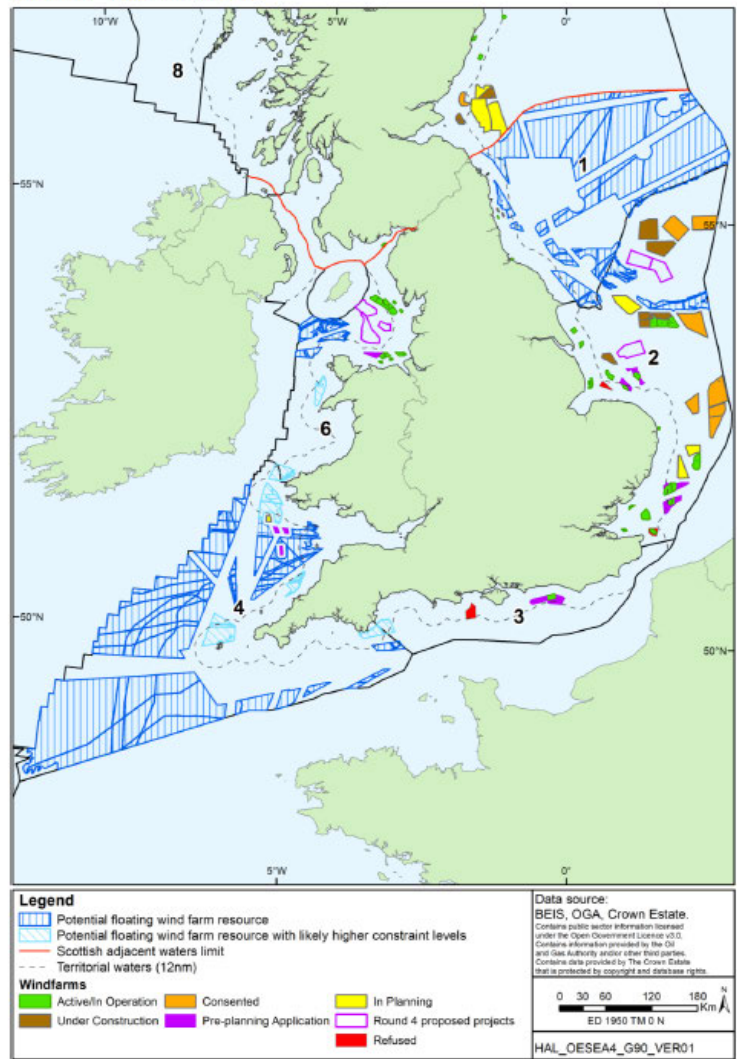
1. De ontwikkeling van vaste windmolenparken gebaseerd op een verscheidenheid aan beperkingen opgelegd zoals veiligheidszones rond infrastructuur, vaarroutes, visserij, mariene leidingen, mariene conservatie zone e.d.
 - a. Donkerblauw gearceerd: potentieel gebied voor de ontwikkeling van vaste windmolenparken
 - b. Lichtblauw gearceerd: potentieel gebied voor de ontwikkeling van vaste windmolenparken waar meer beperkingen kunnen opgelegd worden
 - c. Groen: actuele actieve windmolenparken
 - d. Oranje: goedgekeurd om te ontwikkelen, maar waar de ontwikkelaar wacht tot het economisch rendabel is (vraag naar hernieuwbare energie hoog genoeg)
 - e. Geel: ontwikkeling van windmolenparken in planning zijn
 - f. Bruin: windmolenparken in aanbouw
 - g. Paars: windmolenparken in pre-planningsfase of conceptfase
 - h. Rood: geweigerde windmolenparken

Figure 5.81: Offshore wind: seafloor area remaining following application of “hard” constraints (10-60m) – refer to Table 5.35



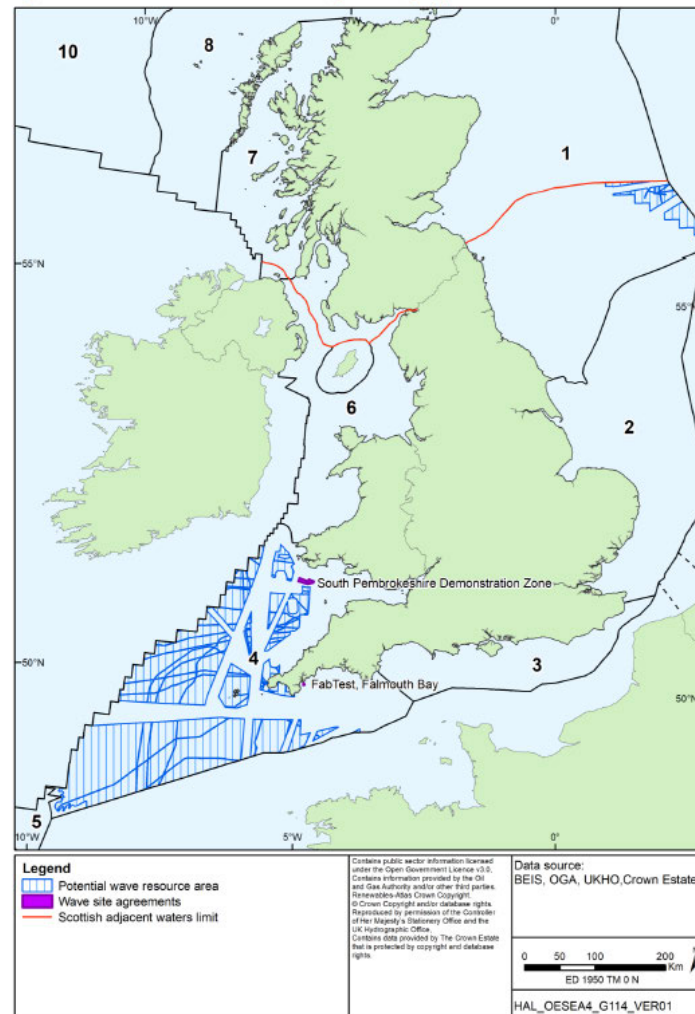
2. De ontwikkeling van drijvende windmolenparken gebaseerd op een verscheidenheid aan beperkingen opgelegd zoals veiligheidszones rond infrastructuur, vaarroutes, visserij, mariene leidingen, mariene conservatie zone e.d.:
 - a. Donkerblauw gearceerd: potentieel gebied voor de ontwikkeling van drijvende windmolenparken
 - b. Lichtblauw gearceerd: potentieel gebied voor de ontwikkeling van drijvende windmolenparken waar meer beperkingen kunnen opgelegd worden

Figure 5.87: Offshore wind: seafloor area remaining following application of “hard” constraints (50-200m) – refer to Table 5.35



3. Golf- en getijdenenergie:

Figure 5.92: Wave: seafloor area remaining following application of “hard” constraints



Overwegende dat de potentiële gebieden voor de ontwikkeling windmolenparken onderzocht werden; dat deze niet overlappen met het Belgisch Marien Ruimtelijk plan 2020-2026; dat deze zich niet dicht in de buurt van de Belgische kust bevinden;

Overwegende dat offshore waterstofproductie hetzelfde in schaal is als kleine offshore platformen zoals gebruikt in de zuidelijke Noordzee gasontwikkeling of CCS projecten; dat deze waarschijnlijk dicht bij offshore windmolenparken gelegen is en dat deze klein, geïsoleerd en ver van de kust verwijderd is en misschien volledig onder het zee oppervlak;

Overwegende dat geen potentiële gebieden voor de ontwikkeling van golf- en getijdenenergie dicht bij de Belgische zee bevinden;

Overwegende dat het rapport een algemeen plan betreft; dat geen concrete ontwikkelingen voorgesteld worden; dat het ontwerp rapport als volgt beoordeeld wordt:

- De stad heeft te weinig expertise in huis om een inhoudelijk gefundeerd advies te kunnen opmaken voor dit uitgebreide dossier.
- Het huidige plangebied niet overlapt met het Belgisch Marien Ruimtelijkplan 2020-2026 waardoor er op het eerste zicht geen problemen verwacht worden. Echter dient er rekening gehouden te worden met de huidige vaarroutes van de scheepsvaart en pleziervaartuigen. De routes dienen gegarandeerd te worden.
- Windmolenparken en andere ontwikkelingen dienen niet zichtbaar te zijn vanop de Belgische kust. De zee niet vol te zetten met windmolens, maar te investeren in de bestaande windmolenparken zodat de visserij en recreatieve scheepsvaart behouden kan worden.

BESLUIT:

- Art.1. Akte te nemen van het ontwerp van het milieueffectenrapport en het OESEA4-plan van Department for Business, Energy and Industrial Strategy, in de UK. De gemeente wil vragen om rekening te houden met volgende opmerkingen:
- De stad heeft te weinig expertise in huis om een gefundeerd advies te kunnen opmaken voor dit uitgebreide dossier.
 - Het huidige plangebied niet overlapt met het Belgisch Marien Ruimtelijkplan 2020-2026 waardoor er op het eerste zicht geen problemen verwacht worden. Echter dient er rekening gehouden te worden met de huidige vaarroutes van de scheepsvaart en pleziervaartuigen. De routes dienen gegarandeerd te worden.
 - Windmolenparken en andere ontwikkelingen dienen niet zichtbaar te zijn vanop de Belgische kust. De zee niet vol te zetten met windmolens, maar te investeren in de bestaande windmolenparken zodat de visserij en recreatieve scheepsvaart behouden kan worden.
- Art.1. Kennis hiervan te geven aan Department for Business, Energy and Industrial Strategy (oesea@beis.gov.uk), departement omgeving [REDACTED], diensthoofd technische dienst en de milieuambtenaar.

UK OFFSHORE ENERGY STRATEGIC ENVIRONMENTAL ASSESSMENT 4 (OESEA4)

Consultation Response

Offshore Energies UK is the leading trade body for the UK's integrating offshore energies industry. Our membership includes over 400 organisations with an interest in offshore oil, gas, carbon capture and storage, hydrogen, and wind. From operators to the supply chain and across the lifecycle from production to decommissioning, they are safely providing cleaner fuel, power, and products to the UK. Working together with our members, we are a driving force supporting the UK in ensuring security of energy supply while helping to meet its net zero ambitions. We work on behalf of the sector and our members to inform understanding with facts, evidence, and data, engage on a range of key issues and support the broader value of this industry in a changing energy landscape.

Our sector is fully aligned with supporting the government's objective to achieve net-zero by 2050, including the Government's Net Zero Strategy, and is already committed to reducing emissions from oil and gas production and in delivering objectives on CCUS and Hydrogen. Many of our members are key investors and developers for Hydrogen production projects including both those supported by carbon capture and electrolysis (i.e. "blue" and "green"). The sector recently agreed the North Sea Transition Deal (NSTD) with government with these objectives included.

The OESEA4 process is a crucial element for the UK in being able to fulfil the potential of the offshore environment in energy production. This includes a continued, but declining role for oil and gas production, and increasingly investment in renewable technology CCUS and Hydrogen. The OGA (now NSTA) assessment that around 60% of UK emission reduction being realised through the offshore sector remains relevant. A clear framework for licensing and leasing decision will be central to making this happen. The updated OESEA4 document is therefore both welcome and timely.

With respect to future oil and gas licensing, we would strongly agree with the approach set out and, in particular, the recognition that oil and gas investment continues to be highly productive and has a role in maintaining the UK's security of supply during the transition to a low carbon economy. This has, of course been brought into even sharper focus by the Russian invasion of Ukraine and the impact on the UK and European natural gas markets.

OEUK has already participated in the Licencing Review conducted by BEIS and responded to the Climate Compatibility Checkpoint Consultation. As part of this exercise OEUK commissioned NERA to examine the implications of different UK production pathways, both in terms of economic impact and emissions and their report is attached to this submission.

The full report's main conclusions are that:

- UK production is unlikely to have a significant impact on global energy market outcomes meaning that the net quantity of Scope 3 emissions will be unaffected by different scenarios for UK production:

- UK output largely displaces: US shale production or OPEC countries (oil) and; LNG and Russian pipeline supplies (gas) with little or no impact on the quantity of hydrocarbons supplied globally,
- global demand for oil and gas products tends to be inelastic to wholesale prices and that this will generally become more pronounced as governments take action to reduce demand in line with climate goals.
- The impact on Scope 1 and 2 emissions of differing levels of UK production is rather indeterminate for oil, but positive for gas, although new assets in general will, in both cases, be lower carbon intensity than those being decommissioned.
- continued oil and gas production activity could add around £10billion per annum to UK GVA over the period to 2040 compared to a “no new production” scenario.
- The Office for Budget Responsibility (OBR) forecasts that tax revenue from the Oil and Gas production industry will increase significantly compared to recent years, to a total of £23.3 billion over the period 2021/22 to 2026/27.

As discussed in the consultation, the prospectivity of the UKCS for oil and gas remains significant and continued exploration and development is required to meet UK requirements during the transition to net zero. OEUK estimates that roughly half of the likely 15 billion boe requirement can be served from domestic resources provided that exploration, appraisal and development is facilitated. Without this, domestic production could fall off sharply in the coming years, leaving UK reliant on imports for around 80% of UK gas supplies and more than 70% of oil by 2030.

The conclusions of the OESEA4 on this topic, that continued licensing of acreage on the UKCS will maintain UK security of supply at a lower carbon intensity than equivalent imports, is accurate in the context of the expected decline in oil and gas decline through the energy transition.

Equally the consideration of licensing activity for both CCUS and Hydrogen infrastructure, including storage facilities, is also essential to achieving the UK net zero goals and to ensure secure supplies. Since the publication of the OESEA4, the government has indicated a 50m tonne p.a. target for CO₂ storage by 2035 and also extended the Hydrogen target to 10GW by 2030. The need to develop new offshore infrastructure may therefore also be accelerated.

Offshore wind will represent an ever-increasing proportion of UK energy supply with OEUK members in the vanguard of new investment in this technology. The advantages of offshore resources in terms of the scale that can be achieved and the greater consistency of the total wind resource is clear, as set out in the document. Floating wind resources have particular potential for rapid growth. As noted in the document, both new generation and interconnector investment will be required.

The **preferred option** from OESEA4 which recognises areas of uncertainty or high environmental sensitivity, but which allows for continued leasing and licensing with either temporal or spatial restrictions across the whole range of technologies strikes the correct

balance between environmental protection and other policy goals including the net zero objective and ongoing energy security. Suitable mitigation measures to prevent, reduce and offset significant adverse impacts on the environment and other users of the sea are also supported where these are proportionate. OEUK also agrees with the conclusion that Options 1a-1e (no future licensing) should be discounted.

Future oil and gas licencing rounds may be contingent on meeting the requirements of periodic Climate Compatibility Checkpoint. Once this framework is in place there will need to be come coordination between different processes. It is expected that the OESEA conclusions would be adopted within the context of the Climate Compatibility Checkpoint assessment. Similarly, it is noted that the Marine Policy Statement and spatial plans by devolved governments will ultimately set out more detailed in restriction on where future licencing may occur and what mitigation measures might apply.

**OEUK Sustainability
May 2022**



By email to: [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

Our case ID: 300056776
Your ref: UK00051
26 May 2022

Dear OESEA 4 ER Consultation

[Environmental Assessment of Plans and Programmes Regulations 2004](#)
[UK00051 - UK Government - UK Offshore Energy Strategic Environmental Assessment \(OESEA4\)](#)

Thank you for your consultation which we received on 17 March 2022 about the above and its Environmental Report (ER). We have reviewed these documents in relation to our main area of interest for the historic environment in Scotland.

UK00067 - UK Government - UK Offshore Energy Strategic Environmental Assessment (OESEA4)

We welcome that an appropriate baseline for the historic environment in Scotland has been identified and that the assessment has considered the potential for physical damage to features as well as the setting of sites that may arise from different elements of the plan and their reasonable alternatives. We are content to agree with the findings of the assessment in relation to those elements of the plan that are relevant to the historic environment in Scotland.

None of the comments contained in this letter constitute a legal interpretation of the requirements of the Environmental Assessment (Scotland) Act 2005. They are intended rather as helpful advice, as part of our commitment to capacity building in SEA.

We hope this is helpful. Please contact us if you have any questions about this response. The officer managing this case is [REDACTED] who can be contacted by phone on [REDACTED] or by email on [REDACTED]

Yours faithfully

Historic Environment Scotland

From: [REDACTED]
[REDACTED]

Sent: 25 May 2022 10:53

To: Offshore Energy Strategic Environmental Assessment [REDACTED]

Cc: [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Subject: UK Offshore Energy Strategic Environmental Assessment 4 (OESEA4) - Belgian contribution

Dear Sir/Madam,

First of all, Belgium wants to thank you for the opportunity to participate in the adoption process of the **UK draft plan/programme covering future offshore renewables leasing, licensing for oil and gas, hydrocarbon and carbon dioxide gas storage, and offshore hydrogen production.**

At this stage **we don't see a significant impact** as regards the Belgian marine environment policy and/or Belgian users in the area. One pertinent comment we did receive during our internal consultation was the following:

The Flemish Agency for Nature and Forest asks to assess the impact on migratory birds, sea mammals and *Pipistrellus nathusii*. This assessment should include the cumulative effects covering both the existing and the planned structures and developments.

We are looking forward to be informed and/or consulted about the next steps in this process.

Kind regards,

[REDACTED]

Belgian federal Espoo contact point

From: [REDACTED]
Sent: 11 April 2022 15:43
To: Offshore Energy Strategic Environmental Assessment [REDACTED]
Subject: OESEA4 Consultation.

Dear Sir or Madam.

Re The Environmental Assessment of Plans and Programmes Regulation 2004, Offshore Energy Strategic Environmental Assessment.

Despite repeatedly saying that the BEIS draft plan covers the range of energy related activities in the UK marine environment, including; further discussing for renewable energy (offshore wind, wave and tidal technologies), wave/tidal stream/tidal range are all ignored in the draft plan/programme. Indeed they are specifically excluded.

I understand that oil, gas and hydrogen do not have an important part to play but so do the tides which are both powerful and regular.. Their exclusion makes this a very incomplete plan/programme.

Furthermore the need for the cable network to bring generated electricity ashore is neglected as the same network should be shared by both wind and tide generators.

[REDACTED]

From: [REDACTED]
Sent: 27 May 2022 16:45
To: Offshore Energy Strategic Environmental Assessment [REDACTED]
[REDACTED]

[REDACTED] responding as an individual

The Environmental Report states that Information to be included in Environmental Reports - as required by Schedule 2 of the Environmental Assessment of Plans and Programmes Regulations 2004 - should comprise (Table 1.2 # 6) 'The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects, on issues such as - (a) biodiversity; (b) population; (c) human health; (d) fauna; (e) flora; (f) soil; (g) water; (h) air; (i) climatic factors; (j) material assets; (k) cultural heritage, including architectural and archaeological heritage; (l) landscape; and (m) the interrelationship between the issues referred to in sub-paragraphs (a) to (l)'.

However, though the Report and its ancillary documents - including those covering Seascapes/Landscapes, Conservation and Cultural Heritage - analyse in exhaustive detail the development impacts of off-shore energy infrastructure on marine and inter-tidal zones, they appear to have little to say about development impacts inland beyond the immediate coastline, including in supposedly protected areas such as National Parks. Indeed the Report itself states (# 5.14) that 'the impacts of such activities in the terrestrial environment are generally well understood and... Consequently, existing planning procedures and regulatory controls, including project-specific EIA, are considered appropriate for managing any potentially significant effects... Given that ancillary developments are not covered directly by the draft plan/programme but are linked closely to the implementation of some aspects of it, these ancillary development effects are considered to be secondary in nature' (# p. 502).

It would therefore seem that impacts of the 'terrestrial' elements of off-shore energy infrastructure development fall to be assessed in line with the relevant National Policy Statements for Energy (NPS EN1 and EN-3) which, by stipulating that a project promoter should follow 'mitigation hierarchy' (which allows even significant adverse impacts on the protected area's special qualities to be outweighed by the economic benefits), arguably give insufficient incentive for less-damaging location options to be selected. Thus for example in the case of the proposed Rampion-2 windfarm off the Sussex coast, the promoter has - by precluding the use of the existing Rampion-1 cable-landfall site (on technical and 'commercial exclusivity' grounds) - argued that only one landfall site is feasible, even though this is located on one of the few undeveloped stretches of the West Sussex coast and close to an SSSI. Moreover, the cable landfall site chosen (at Climping) can only be connected to the National Grid by digging a 10m.-wide cable-route "corridor" through hitherto undisturbed downland within the South Downs National Park (between Burpham and Washington), which will unavoidably involve not only the disturbance or degradation of wildlife habitat and ancient woodland within the "corridor" but the likely loss of archaeological remains and soil-strata integrity (essential for vegetation regrowth after trench filling - which the National Park Authority has reported was a major problem with Rampion-1). The Report itself admits that 'the current regime has encouraged such [project-specific export cabling] connections' and, 'in recognition of the impact this can have on coastal communities' (p. 15), the Offshore Transmission Network Review (OTNR) was launched in 2020 to ensure better coordination between wind farm operators 'for example, to minimise infrastructure and the number of landfalls' (p. 502).

This publication is available from: <https://www.gov.uk/guidance/offshore-energy-strategic-environmental-assessment-sea-an-overview-of-the-sea-process>

If you need a version of this document in a more accessible format, please email enquiries@beis.gov.uk. Please tell us what format you need. It will help us if you say what assistive technology you use.