

By Email

Sea.aa@decc.gsi.gov.uk

Friday 1st May 2015

Dear Sir or Madam,

Habitats Regulations Assessment of the Offshore Oil and Gas Licensing 28th Seaward Round: Habitats Regulations Assessment Stage 2 – Appropriate Assessment (Irish Sea and St George’s Channel)

Thank you for consulting the Natural Resources Body for Wales (Natural Resources Wales (NRW)) on the above document. NRW’s comments are made in the context of our role as Statutory Nature Conservation Body (SNCB) under the Conservation of Habitats and Species Regulations 2010 (as amended), as further amended by paragraph 189 of the Natural Resources Body for Wales (Functions) Order 2013, and as advisors to the Welsh Government on matters pertaining to the natural heritage of Wales and its coastal waters.

Our comments are focused on the Eastern Irish Sea and St. George’s Channel (Blocks 103/2, 103/3, 106/13, 106/14, 106/15, 106/18, 106/19, 106/20, 106/22, 106/23, 106/24, 106/26, 106/27, 106/28, 106/29, 107/11, 107/16, 110/12b, 110/13c, 110/13e, 110/14b, 110/15b, 110/17, 110/18b,) as these blocks are in closest proximity to Welsh Territorial Waters (WTW) and, in our view, present the greatest potential risk to features of Welsh Natura 2000 sites. Please be advised, however, of the need for all plans or projects to take account of impacts in Welsh waters wherever they are and that this is particularly relevant in the context of mobile species. The Competent Authority (CA), which is DECC in this case, is advised to refer to advice from the other SNCBs for advice on sites outside of WTW.

Natural Resources Wales is committed to working with DECC to ensure development does not have an adverse impact on the integrity of sites. We praise the thorough nature of this Appropriate Assessment. However, our response identifies a number of weaknesses in the assessment that should be addressed before it can be concluded that the plan will not have an effect on the integrity of any European site. In summary, our key concerns relate to:

- a. Re-screening of sites
- b. Consideration of noise impacts (including adequacy of evidence provided)
- c. Oil spill assessment (including modelling and response)

We have provided general comments in Annex 1 distinguishing between issues that we feel must be addressed to ensure the assessment is robust and points of clarification that, whilst not affecting the overall conclusions, should be addressed to ensure accuracy and clarity. In NRW’s view it is worth ensuring that the document is as comprehensive and accurate as possible so that it can be used as a reference by those seeking to develop individual oil and gas projects should the 28th licensing round plan be adopted. Finally, Annex 2 provides more detailed comments on individual

sections of the draft Appropriate Assessment. Natural Resources Wales recommends the advice outlined in this response should be read in conjunction with the following:

- a. NRW's response to the Habitats Regulations Assessment of the Offshore Oil and Gas Licensing 28th Seaward Round: Habitats Regulations Assessment Stage 1 – Block and Site Screenings (dated 5th September 2014)
- b. NRW's response to the Habitats Regulations Assessment of the Offshore Oil and Gas Licensing 27th Seaward Round: Habitats Regulations Assessment Stage 2 – Public consultation on draft Appropriate Assessments (dated 19th April 2013),
- c. CCW's 'Guidance for plan making authorities in Wales'.

We hope you find these comments helpful. Should you wish to have any further discussion with NRW about this response or any matter relating to the oil and gas plan please contact our Marine Renewable Energy Advisor, Jennifer Kelly, in the first instance (Jennifer.kelly@naturalresourceswales.gov.uk or 03000653854).

'Yn ffyddlon' / Yours faithfully

A handwritten signature in black ink, appearing to read 'Rhian Jardine', with a horizontal line underneath.

Rhian Jardine

Head of Sustainable Communities / Pennaeth Cymunedau Cynaliadwy

cc. Enrique Pardo (JNCC);
Kevan Cook (Natural England)

Natural Resources Wales' comments on the draft Stage 2 Appropriate Assessment for the Irish Sea and St George's Channel:

Annex 1 – General Comments:

Issues to be addressed as they may have an influence on the outcome of the assessment:

- 1.1 We welcome the clarity within the AA about those sites and features that are within its scope. However, we note there has been 're-screening' since our advice on the *HRA Stage 1 Block Screening Report*. There are a number of Welsh sites that we strongly consider should have been screened into the assessment at plan-level, as a lack of, or inadequate, supporting evidence is given to confirm that there will be no adverse impact to the integrity of the sites. The sites include relevant coastal SPAs (E.g. Ynys Feurig, Cemlyn Bay and The Skerries), river SACs supporting Annex II fish species (E.g. River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid), coastal SACs (particularly those with dune/saltmarsh features) (E.g. Glannau Môn Cors Heli/Anglesey Coast: Saltmarsh). We have provided more detail about our concerns in Annex 2 below.
- 1.2 With regards to SACs supporting populations of Annex II fish species, NRW consider that there is inadequate evidence to support the conclusion that there is no "foreseeable interaction with Oil & Gas activities" and so we advise relevant sites should be screened into the assessment as stated above. Allis shad, Twaite shad, River Lamprey, Sea Lamprey and Atlantic Salmon are listed as Annex II species features of a number of marine and riverine SACs. These species are highly mobile and spend most of their adult lives at sea, including the use of likely migration routes through the proposed blocks, resulting in the potential for interactions with Oil & Gas activities. We advise that, whilst little data is available on at sea range and distribution, areas supporting high densities of these species are potential feeding grounds and/or migration routes for juvenile and adult fish and so the potential exists for impacts (e.g. noise) as a result of block licensing activities. To note, whilst species specific audiograms are unknown in most cases, shad, like other all members of the order Clupeiformes, have a swim bladder and specialised inner ear structures and are thought to exhibit extended hearing frequency range and making these species particularly sensitive to noise. Furthermore, future project level assessments must ensure that all pathways with potential to impact to Annex II fish species (including their prey species) such as disturbance to essential life stage habitats, interference with migratory routes, noise etc are fully considered using best available evidence.
- 1.3 In addition, NRW maintains the advice given in our response to the *HRA Stage 1 Block Screening Report*, where NRW recommend that DECC refers to the work undertaken as part of the EIA and HRA for the Burbo Bank Offshore Windfarm Extension to inform the assessment of the potential implications of the 28th Round on patterns of adult Atlantic salmon migration back into the River Dee and Bala Lake SAC and Dee Estuary SAC¹. The application of this evidence should also be considered for the Pembrokeshire quadrants, and for its relevance to other relevant migratory fish species and prey species. To note, as Salmon mortality at sea is already at an all-time high², NRW would advise that all possible measures to minimise impacts on this species are implemented.
- 1.4 We also note that Ramsar sites have been re-screened out of the assessment, including the Dee Estuary Ramsar and Dyfi Estuary Ramsar. We advise these sites should be assessed as

¹ <http://infrastructure.planningportal.gov.uk/wp-content/ipc/uploads/projects/EN010026/2.%20Post-Submission/Application%20Documents/Environmental%20Statement/5.1.5.13%20Fish%20and%20Shellfish%20Ecology.pdf> ²Cefas. 2013. Salmon Report 2013.

the AA acknowledges potential impacts to the Dee Estuary SAC and The Dee Estuary SPA and Pen Llyn a'r Sarnau SAC, which are the corresponding sites for the Ramsars.

- 1.5 Marine non-native species (NNS) pose a major threat to global biodiversity and have the potential to have a significant negative effect on Natura 2000 sites. The screening assessment forming the first stage of the Habitats Regulations Assessment (HRA) process does not, but needs to, consider biosecurity risks/NNS as part of the AA for the Irish Sea and St George's Channel region, and any potential effects on relevant Natura 2000 sites.
- 1.6 Risks to Annex I reef features (in sections 4 and 6) are not fully explored. Potential impacts from both physical disturbance/smothering and contamination (spills) need to be considered for biogenic reefs and rocky/stoney reefs (particularly as knowledge of the exact subtidal locations of these features is still limited throughout Welsh waters). NRW notes that risks of impacts are partially covered by stating that each project would have its own EIA. If it is the case that these effects can only be reasonably considered at the project stage when the necessary information about activities becomes available the assessment should clearly state this is the case. If adequate information is available at this stage then we advise that greater consideration of the potential risks to features is required.
- 1.7 The assessment of sensitivity to oil spills relies heavily upon Law et al. NRW note that the source rules out the ability to provide specific guidance for individual habitats and species: "The following sections provide guidance for eight broad habitats and eight broad groups of mobile species. Plants and invertebrates are considered within the relevant habitat sections, as impacts to their populations are generally closely linked with the sensitivities and vulnerabilities of the habitats. Much of the guidance is still generic, as the variety of habitats, species and their associated sensitivities is far too great for detailed specific guidance." NRW consider that more sensitive features may have been inadequately assessed as a result of this and would welcome clarification on how more sensitive features have been assessed.
- 1.8 Please note that Welsh Government and Natural Resources Wales are currently sharing information on a number of sea areas around Wales currently being considered for possible identification as new Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). According to scientific evidence, the areas concerned are considered to support internationally important populations of Harbour porpoise and species of seabirds. Decisions on whether to designate SACs and SPAs in Welsh waters are made by the Welsh Minister for Natural Resources and no such decisions have yet been made. If the minister decides to proceed with these proposals, they will be subject to full public consultation later in the year, before any decisions are made on whether to designate each area. Once areas have received ministerial approval to formally consult on them, it is Government policy that the possible sites should be treated as designated in terms of assessments, until the Minister has decided whether or not to designate them. Should the decision be taken to proceed with consultation on new potential sites before the decision to adopt the oil and gas licensing plan is taken then these new sites will need to be taken into consideration by the current HRA. Further information:

email marine.n2k@naturalresourceswales.gov.uk

- 1.9 NRW considers that prey species and component species of habitat features have not been adequately covered, further detail is provided in Annex 2 (notably points 1.27, 1.29, 1.33, 1.35).

1.10 NRW maintains the advice given in our response to the *HRA Stage 1 Block Screening Report*, on the following areas:

- a. For Annex 1 habitats outside SACs, in addition to assessing the possible effect of the 28th Round on European and international sites, we would advise that DECC should also consider, as far as is reasonably possible, impacts on Habitats Directive Annex I habitats outside of protected sites, to ensure compliance with Article 10 of the Directive³. NRW considers that the aim of the Habitats Directive to achieve FCS of Annex I habitats appears, through Article 10, to relate to the entire resource of a habitat type, at least in terms of extent, rather than applying only to the occurrence within the SAC network. We therefore consider that the impacts of development or activities associated with the 28th Round on undesignated Annex I habitat outside SACs should be assessed and adverse effects minimised or mitigated as far as possible. NRW would welcome further discussion with DECC on this issue.
- b. It is important that the AA also takes account of the condition and conservation status of features of European and international sites, as far as current evidence and information allow. Details of the conservation status of the relevant habitats and species within the UK during 2007-2013, as reported to the European Commission are available on JNCC's website⁴. Documentation at the country level was produced to support UK level reporting and should be available on request from JNCC. Information on the condition and conservation status of features at a Welsh site level is not currently available in a collated format that can easily be shared with DECC, with the exception of bird features (see paragraph 1.9c below). We would welcome further discussion on how DECC might take feature condition and conservation status into account in the AA for the 28th Round.
- c. For SPAs we recommend the use of the mean/max foraging radii detailed in Thaxter et al (2012)⁵. We consider that this provides for a robust approach to screening wide ranging seabird species during the breeding season into the AA. We consider that in order to take a robust approach to the assessment of possible impacts on bird species, the HRA needs to take account of the possible impact on breeding seabird features outside of the breeding season, when they are not necessarily centrally placed foragers. We appreciate that this is a difficult issue to incorporate into the HRA given the uncertainty about areas utilised by SPA breeding seabird features during the non-breeding winter months. In February 2013 a briefing note⁶ was produced by JNCC and Natural England to help developers and regulators deal with this issue in relation to offshore wind, which may provide some useful guidance to inform how this issue might be incorporated in the 28th Round HRA. NRW can provide a copy of this briefing note on request, if necessary.

Points of Clarification:

1.11 NRW note that the Appropriate Assessment is unclear regarding the number and nature of wells proposed within each set of blocks for licensing, leading to confusion. NRW would welcome clarity on the proposals for development in each quadrant including a summary detailing the blocks within each development proposal and the number of wells proposed.

³ Article 10 of the Habitats Directive states that...'*Member States shall endeavour, where they consider it necessary, in their land-use planning and development policies and, in particular, with a view to improving the ecological coherence of the Natura 2000 network, to encourage the management of features...which are of major importance for wild fauna and flora*'. For sites to be ecologically 'coherent' they need to have links outside their designated area, in order to ensure that Annex I habitats and Annex II species can be maintained in favourable conservation status in the long term.

⁴ JNCC information on the condition and conservation status of Habitats Directive habitat and species: <http://jncc.defra.gov.uk/page-4060>

⁵ Thaxter, C.B., Lascelles, B., Sugar, K., Cook, A.S.C.P., Roos, S., Bolton, M., Langston, R.H.W. & Burton, N.H.K. 2012. Seabird Foraging Ranges as a Preliminary Tool for Identifying Candidate Marine Protected Areas. *Biological Conservation* **156**: 53-61.

⁶ Natural England & JNCC (2012), Presenting information to inform assessment of the potential magnitude and consequences of displacement of seabirds in relation of Offshore Windfarm Developments.

- 1.12 Regarding marine extensions to three existing Welsh coastal SPAs: Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island SPA, Grassholm SPA and Skokholm & Skomer SPA, these extensions were formally classified by Welsh Ministers on 7th October 2014⁷. As such these sites should be considered as SPAs, rather than pSPAs, in the Appropriate Assessment.
- 1.13 NRW have not comprehensively cross-referenced all Welsh sites and features in appendices. Ramsar Information Sheets and SAC and SPA Natura 2000 Standard Data forms (in conjunction with the 2001 Review of the Birds Directive), are available to download from the Joint Nature Conservation Committee's (JNCC) website, which provide the definitive information on site features which should be used to inform the AA.
- 1.14 NRW have not comprehensively checked the colony counts given for Welsh sites in Appendix C. The most comprehensive and up to date information on colony counts for Special Protection Area features is available via JNCC's online *Seabird Monitoring Plan (SMP)* database⁸. If information on specific features which have been scoped into the AA is not available on the SMP website, NRW will be happy to provide further clarification.
- 1.15 Please note that the following sites are cross-border sites between England and Wales, and are not wholly in England or Wales as the AA groups them/infers (E.g. *Table A1*, p.87): Dee Estuary SAC, The Dee Estuary SPA, and Liverpool Bay SPA, River Dee and Bala Lake SAC.
- 1.16 Please note Sea cliffs of Lleyn SAC, is incorrectly identified as the corresponding SAC for the Dyfi Estuary Ramsar site. The correct corresponding SACs are: Pen Llyn a'r Sarnau SAC and Cors Fochno SAC.
- 1.17 NRW note that in *Table A.1 Coastal and marine SPAs and their Qualifying Features* a number of features for the Burry Inlet SPA are missing. The table should include Pintail, Shoveler, Teal, Wigeon, Dunlin, Knot, Oystercatcher, Curlew, Grey plover, Shelduck and Redshank.
- 1.18 With regards to the Ramsars identified in Table A4 (p.100), we advise that the relevant features for these sites should be listed, for consistency with SAC and SPA information. The relevant features considered in scope for the AA should also be presented.
- 1.19 NRW note inconsistencies between the annexes and the body of the AA. For example, on p.135 Annex B suggests the AA has considered impacts to features of the Afon Teifi/River Teifi SAC in 'section 6.3', however, when cross referenced with section 6.3 the site has not been further assessed or included in figure 6.1.

⁷ Minister's statement available at: <http://gov.wales/about/cabinet/cabinetstatements/2014/seabirds/?lang=en>

⁸ JNCC's online Seabird Monitoring Plan (SMP) database: <http://jncc.defra.gov.uk/smp/>

Annex 2 – Detailed Comments

Detailed comments in this annex are provided under the section headings provided in the Appropriate Assessment.

Physical Disturbance and Drilling Effects

- 1.20 *Section 4.2.1 – Anchoring of semi-submersible rigs:* This method is generally only used in >90m water depth. However, in the event of this method being adopted there is a possibility for direct disturbance of benthic habitat through impact from anchors and chain drag. It is stated that the depth of sediment overturned by anchor chains may be in the order of a few metres. In areas of sensitive habitat this could be very damaging to both epifaunal and infaunal species which may be slow to recover. The justification that “in many cases the overturned sediment will be qualitatively similar to existing sediments” is a generalisation and there is no justification provided. The nature of recovery would entirely depend on the habitat present and therefore, NRW advise it would be more appropriate to state that rig siting is particularly important given potential sensitivities and detailed evidence of site specific habitats should be provided at a project level.
- 1.21 *Section 4.2.1 – Placement of jack-up rigs:* The benthic footprint of this method could be significant. It is stated that “within the seabed footprint, the benthic assemblage would likely be killed by crushing or by the effects of reduced water exchange, though rapid recovery would be expected”. NRW advise that this statement is a generalisation and no justification is made, and therefore the assumption of rapid recovery cannot be made until project level site characterisation surveys have been undertaken.
- 1.22 *Section 4.2.2 – Drilling discharges:* It is stated that 90% of drill cuttings are deposited within 550m of the site with the remaining 10% estimated to travel 5,500m from the source as a suspended sediment plume. Evidence of the impact of near field smothering of benthos within the vicinity of a well has been provided with reference to a single case study, Trannum et al (2011). However, although the conclusions of this study state that there was some recovery after 6 months the field experiment was undertaken in a Norwegian fjord rather than on the continental shelf and the authors themselves suggest that the scale, hydrodynamic factors, larval supply, sediment characteristics, temperature variation and input of organic matter may be significantly different to those sites where oil and gas exploration take place. In addition, the conclusions of the study also recommend that the relationship between disturbance and community response is highly complex and far more research is needed to establish any generic relationships between sediment and responses to water-based drill cuttings. Although not mentioned in the report, previous research by Trannum et al (2010) again looking at the effects of sedimentation from water based drill cuttings found that there was a significant reduction in number of taxa, abundance, biomass, and diversity of macrofauna with increasing thickness of drill cuttings (3-24mm). As 90 % of drill cuttings are likely to be deposited within 550m of the well this could have an impact over a large area when considering multiple exploration wells. In addition, NRW advise that the use of an average deposition depth value of 16.2mm over a 550m distance is inadequate as each scenario is likely to be different. We recommend that evidence on the likely maximum depth of sediment as you move progressively away from the drill-head would be more appropriate for this assessment. We also note that smothering issues (and similarly recovery) are likely to be site specific related to depth, water movements and the sediment/benthic community type that is present. Accordingly, NRW advise that comments cannot be made in confidence at plan-level and suggest that further emphasis is put on the requirement for site specific surveys at a project level given the high variability and diversity of benthic habitats across all sites and the uncertainties with regards to impacts on benthic communities.

- 1.23 *Section 4.2.2:* There is no mention of how suspended sediment plumes or smothering will impact fish (particularly migratory species). Suspended sediment is known to cause avoidance behaviour in some species with the potential to impact on migratory routes, and therefore site integrity. In addition, this should also be considered in-combination with the effects of smothering as foraging areas and spawning grounds may also be directly impacted by drilling activity.
- 1.24 *Section 4.3:* In the re-screening tables in *Appendix B* it is stated that Menai Strait and Conwy Bay SAC may be physically disturbed by the proposed activity. However, the map in Figure 4.1 does not include Menai Strait and Conwy Bay SAC nor is there any consideration of impacts in *table 4.1*. Given that block 110/17 partially overlaps this SAC and is within close proximity to a number of other blocks this designation NRW advise that Menai Strait and Conwy Bay SAC, should also be assessed with regards to potential physical disturbance and drilling effects. Similarly, there are a number of SPA's that have not been included. Given that Aberdaron and Bardsey Island SPA, Grassholm SPA and Skokholm and Skomer SPA now include marine extensions which are very close to the proposed activity, NRW advise that the above sites should be assessed (and therefore included in *figure 4.1* and *table 4.1* for consideration), particularly with regards to rig/vessel presence and movement.

With regards to Marine Mammals:

- 1.25 Seal corkscrew injuries – on p.22 the AA correctly states that while further research may be necessary before interactions from ducted propellers can be entirely discounted, it is now considered likely that the use of such vessels may not pose any increased risk to seals over and above normal shipping activities. However, it must also be noted that all possible care should be taken in the vicinity of major seal breeding and haul-out sites to avoid collisions (SNCB 2015). Rig/vessel presence and vessel movement has the potential to cause physical injury to qualifying features (grey seal) of Pen Llyn a'r Sarnau, Cardigan Bay & Pembrokeshire Marine SACs. NRW would welcome clarity as to whether the AA has assessed the impacts of rig/vessel presence and vessel movement to qualifying features as outlined in this comment.
- 1.26 'Rig installation/placement' is not considered as a potential impact on Pen Llyn a'r Sarnau and Cardigan Bay SACs. However, noise impacts from rig installation could extend beyond the footprint of the blocks and therefore possible impact on these SACs should be considered. Furthermore, the marine mammal features of these SACs are mobile species and as such are considered at a management unit scale rather than at individual site level. Any activities that occur within the management unit (MU) for each species have the potential to impact on those species as features of any SACs within that MU and their effects should be considered.

With regards to Birds:

- 1.27 *Table 4.1:* This table should take account of the potential effect on drilling/piling on the fish prey (e.g. Red-throated divers in Liverpool Bay SPA).

Underwater noise effects

- 1.28 NRW considers that there is inadequate evidence to support the conclusion that underwater noise would not result in significant effects on qualifying species. It is implied that, due to a lack of evidence on causal links (including in previous cases) that impacts can be discounted. Please note, the presumption in favour of future proposals due to previous proposals passing the Natura tests, (if this is what is meant in the document), is explicitly ruled-out in the EU Natura guidance 'Managing Natura 2000 Sites; The provisions of Article 6 of the Habitats Directive 92/43/EC'. NRW advise that consideration of the interim framework to assess PCoD

(point 1.31 below) could provide evidence to consider impacts from underwater noise more appropriately.

1.29 As previously stated in the joint SNCB response to the block HRA screening report for the 27th licensing round (5th September 2012) we note that the following statement has again been used in conclusions on the impacts from underwater noise, which we continue to believe is misleading: “Although seismic survey, piling and other oilfield noise is detectable by marine mammals, waterbirds and their prey, there is no evidence that such noise presents a risk to the viability of populations in UK waters.” The information and evidence available for carrying out an assessment of population effects of disturbance on marine mammal species is limited. An interim framework⁹ has been developed to assess the population consequences of disturbance (PCoD) for marine mammals, based largely on models which have been developed for bottlenose dolphin and harbour seal in the Moray Firth. The PCoD project, funded by The Crown Estate, DECC, Marine Scotland and the SNCAs, was initiated at a workshop hosted by CCW, NERC and JNCC in March 2012, primarily driven by the need to assess the consequences of multiple sources of disturbance (e.g. through piling and increased vessel use) on mammal populations around the UK primarily due to the offshore renewables sector. The interim framework draws largely on expert judgement to assess the levels of disturbance that mammal populations can sustain before their viability and conservation status are impacted, through effects on survival rate, growth rate, reproductive rate, etc. In the longer term, the development of a more robust, empirically-based model for assessing the population consequences of acoustic disturbance (PCAD) on marine mammal populations is the subject of one of the strands of work currently proposed as part of the Offshore Renewables Joint Industries Programme (ORJIP). The interim PCoD and proposed 'PCAD' frameworks may also help to better understand the population consequences of multiple seismic activities, and might therefore be applicable to issues surrounding oil and gas exploration and development. NRW consider that these tools should be considered for use in the AA.

1.30 NRW note the potential use of sub-bottom profiling (p.30). NRW advise that, although in the long term more information needs to be collected on the use of sub-bottom profilers in order to assess their risk, as a precautionary measure all sub-bottom profiler surveys should be mitigated in the manner currently applied to seismic surveys with an airgun volume of 180 cu in or less, as set out in '*JNCC guidelines for minimising the risk of injury and disturbance to marine mammals from seismic surveys, August 2010*'¹⁰.

1.31 We repeat our advice given in response the *HRA Stage 1 Block Screening Report* that the inclusion of “European Protected Species (EPS) disturbance licences issued under the *Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007*” as a mitigation measure for acoustic disturbance (p.38) needs to be expanded upon to explain that whilst the issuing of such a licence does not in itself constitute mitigation, the process of applying for/assessing an application for an EPS disturbance licence does provide an opportunity for an assessment of whether an activity will be detrimental to the maintenance of the populations of the species concerned at a Favourable Conservation Status (FCS) in their natural range. If this is the case then an EPS disturbance licence cannot be issued.

1.32 With regards to the use of PAM (p.39), NRW advise that the full JNCC guidelines¹¹ for minimising the risk of disturbance and injury to marine mammals from seismic surveys are

⁹ <http://www.scotland.gov.uk/Publications/2014/02/8509>

¹⁰ Available at: <http://jncc.defra.gov.uk/page-1534>

¹¹ http://jncc.defra.gov.uk/pdf/JNCC_Guidelines_Seismic%20Guidelines_Aug%202010.pdf

adhered to. This includes the requirement for sea states that are appropriate for visual assessments, which has not been acknowledged in the AA.

1.33 *Specific comments on Section 5.2 (Underwater noise effects) and Section 5.3 (Implications for site integrity of relevant sites):*

- a. The section largely outlines noise sources associated with proposed seismic work programmes only, whereas noise impacts from other sources such as drilling, multibeam and side scan sonar should also be considered.
- b. NRW advise that, in general, there is inadequate consideration of noise sources and evidence supporting the assessment of noise. If it is the case that this information is not available at the plan level, then it should be made clear that this is the case and that consideration of this activity should be deferred to the project level. In the bullet points below we have provided comments on aspects of the assessment that relate to the effects of noise on mammals and fish which should be taken into account by either plan or project level assessments (should assessment be deferred to that level):
 - Some drilling associated noise source information has been provided in relation to rig site surveys, however, technique specific sound level detail is lacking and many of the noise sources anticipated as a result of drilling field activities are absent. For the noise sources identified, information on source level, typical spatial coverage and survey duration has not been provided. This information will be crucial at project level assessment.
 - Detail is lacking on the specific seismic gun array proposed, some information is given in general terms e.g. 'typical source pressure levels' but no specific information is given on source levels, frequency components, duty cycles etc. There is no information on how sound will propagate within the survey area.
 - The literature cited in the assessment (Thompson *et al.* 2013) associates seismic survey operations with fine scale redistribution of individuals or change in behaviour that could result in energetic costs, particularly where disturbance occurs over long periods. NRW advise that the rationale behind the statement that '*seismic survey in any of the proposed Blocks to significantly affect the population and relevant site conservation objectives is not considered likely*' has not been sufficiently explained.
 - Note that the seismic operations in the Moray Firth study by Thompson *et al.* (2013) was carried out over a period of 10 days only, and as the AA correctly states "*where such changes occur during longer periods of disturbance, there could be potential impacts on individual vital rates*" (Currey *et al.* 2011, New *et al.* 2013). We also note that any temporary displacement of marine mammals could have varying impacts depending on whether animals are displaced from areas that are important for feeding, resting or nursing.
 - Clarity is required on the potential for multiple field activities to occur concurrently or within short duration of one another across a number of blocks and in combination with any other relevant plans or projects.
 - The consideration of the potential noise impacts on fish (prey species) is adequate. Generic statements such as '*noise levels suggested to cause injury to fish (a primary prey species) would not extend beyond a few tens of metres around the noise source*' need to be evidence based and qualified with referenced species specific injury thresholds and typical source pressure levels. The proposed licence area encompasses large areas of known spawning and nursery grounds for numerous commercial species including bottlenose

dolphin prey species such as haddock *Merluccius merluccius* and cod *Gadus morhua*. Certain fish species, such as salmon *Salmo salar* are sensitive to particle velocity rather than sound pressure level. NRW advise that assessment should ensure that all aspect of noise related impacts to prey species are fully considered using best available evidence and the acquisition of site specific information on the distribution of noise impact sensitive species.

- NRW considers that the statement '*noise levels associated with other activities potentially resulting from licensing of the Blocks such as rig site survey, VSP, drilling and vessel movements, are of a considerably lower magnitude (see Section 5.2.1) than those resulting from a deep geological seismic survey, and are not expected to have an adverse effect on the integrity of the sites*' and referenced section detail does not constitute an appropriate assessment of likely impacts from such activities. Noise impacts associated with drilling, multibeam and sidescan sonar, and vessel movements have not been adequately considered.
- Section 5.3.3 Special Protection Areas: The AA should assess the impacts of underwater noise on the fish prey of Red-throated diver in Liverpool Bay.

1.34 With regards to *Section 5.3.1 (Special Areas of Conservation for marine mammals)*, references to the Feingold & Evans (2013) Seawatch report suggesting a shift in the overall Cardigan Bay bottlenose dolphin population. In their report, Feingold & Evans (2013) state that whilst these observations may represent a trend, it is too early to say with confidence and that caution is needed when interpreting the results. Feingold & Evans (2013) does however provide evidence confirming that the full geographic range of this population includes all of the coastal waters of West and North Wales, and possibly the entire Irish Sea, reaffirming the need to fully consider the vulnerability of these species to impacts arising from licensing activities in the blocks offered in the 28th Round at project level. This further supports the consideration of impacts at a marine mammal management unit (MU) scale rather than at site level. It is therefore noted that for bottlenose dolphin, block 107, 110 and the majority of blocks 106 fall within the Irish sea MU which includes Pen Llyn a'r Sarnau SAC and Cardigan Bay SAC therefore any activity within this management unit must be considered to have a potential impact on those SACs. For grey seal, blocks 103, 106, 107 and 110 fall within the Southwest England & Wales MU and therefore any SACs within that MU must be considered.

1.35 *Section 5.5 Conclusions*: The conclusions in relation to marine mammals, water birds and prey species appear to have been drawn from Article 17 reporting summarised in Charting Progress 2 (Defra, 2010). This section would benefit from a breakdown of conclusions by noise receptors rather than the aggregated conclusion provided drawn from a heavily summarised high level report.

Accidental spill effects

1.36 NRW consider that Marine Mammal Management Units should be used in order to sufficiently consider the potential impact on all relevant features of SACs within that MMMU.

1.37 In *section 6.2.3* it states, "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." NRW would welcome clarity on whether wildfowl and waders (including the marine habitats they rely on within and out with any SPAs) have also been considered as these features are also 'vulnerable components of the ecosystem', and are features of a number of SPAs.

- 1.38 *Table 6.2: Passage tern has not been included but should be considered as a feature of The Dee Estuary SPA.*
- 1.39 In *section 6.3.1* Consideration of mobile qualifying species: To determine screening of SPAs, the mean maximum for each species identified in Thaxter et al¹² should be used, rather than the data from tagging work. As tagging is generally on a very small handful of the colony, it is more precautionary to use the mean maximum. NRW recognises the use of tracking data to identify areas where individuals are present. In addition, the AA needs to consider birds from breeding seabird SPA's outside of the breeding season, especially during sensitivity times such as fledging and moulting.
- 1.40 For fish species, NRW notes that in *section 6.2.3*, the AA states that: "In open waters deeper than 10m, the likelihood that contaminant concentrations will be high enough to affect fish populations is very small, even if chemical dispersants are used". However, no evidence is presented to confirm that an accidental oil spill would not impact on waters less than 10m in depth, where, for example, (as the AA states) predominantly surface dwelling species such as Atlantic salmon, are likely to be found and are potentially vulnerable to such pollution. NRW seek further clarification of any sea areas <10m depth, that could be impacted by an accidental spill from the proposed blocks in the 28th Licensing Round and clarity on the potential impacts. NRW considers the assessment of impacts to fish species from accidental spills to be inadequate – including lethal and sub-lethal effects linked to potential bioaccumulation and contamination.
- 1.41 NRW considers the draft AA currently contains insufficient evidence to support a conclusion of no adverse effect on site integrity (AEOSI) from oil spills. Much emphasis is placed on the Eastern Irish Sea being a 'gas province' and that therefore the risk is limited. According to the most recent OPEP for the Liverpool Bay installations operated by BHP Billiton (March 2013) "all Liverpool Bay installations produce some liquid hydrocarbons as well as gas" and two of the production wells in the Douglas field that are currently producing oil have the potential to free-flow even if the installed electrical submersible pumps (ESP) were switched off. The AA should address this issue either by providing evidence that any activity in the blocks to be licensed in the 28th Round will be restricted to gas extraction or by considering the potential impact of crude oil spills on the relevant Natura sites.
- 1.42 The AA should also address the potential for a crude oil spill caused by an interaction between the existing oil operating infrastructure and any new activity arising from the 28th Round. For example, the potential for a collision between construction or exploration vessels and any Offshore Storage Installation vessels.
- 1.43 With regards to the oil spill modelling in *section 6.2.2*, NRW note that there are no maps or assessments of oceanographic or hydrographic processes, which may have critical influence on statements of effects of oil spills for marine mammals and other features. For example, oil spills in eastern Liverpool Bay, an area of low water movement and comparatively high retention lengths will have more impact than oil spills in high flow/energy areas e.g. western Liverpool bay/Anglesey Coast. The results of modelling the worst case scenarios of total loss of inventory from the OSI or a blow out one of the Douglas field well heads that are capable of free flowing (outlined in the most recent OPEP for the BHP installations in Liverpool Bay) indicate that even with variable wind speeds and directions over a 30 – 120 day period, there is a strong likelihood of crude oil being beached along the North Wales coast and in the Dee

¹² Thaxter, C., Lascelles, B., Sugar, K., Cook, A.C.S., Roos, S., Bolton, M., Langston, R.H.W., Burton, N.H.K., (2012.) Seabird foraging ranges as a preliminary tool for identifying candidate marine protected areas. *Biol. Conserv.*

Estuary. NRW therefore feel that the worst case scenario presented in the Appropriate Assessment appears to be inadequate and would welcome clarity on how oceanographic and/or hydrographic processes have been considered.

- 1.44 NRW note that in considering mitigation measures for accidental spills (p.61) the following statement is made: 'Diesel and condensate would be considered Group 1 oil types', with minimum standards for incident response shown in *Table 6.3* (p.62), implying that only response to Oil Type 1 spills would be required. However, information on '6.2.1 Historical spill frequency' identifies crude oil spills, which are Group 2 (light crude) or Group 3 (medium crude). We consider the omission of this information to be misleading and further clarity on the potential impacts from, and required response to, an accidental spill is required.
- 1.45 NRW notes that the assessment of accidental oil spills assumes that the likelihood of an incident being very low, the amount of oil released is likely to be small (that these are unlikely to be oil well, with gas production more likely), the type of oil would disperse relatively quickly, and emergency planning would also be in place to reduce and manage the risk further. The potential for accidental spills that exceed these scenarios (i.e. the worst case scenario) have been poorly considered and NRW therefore consider that conclusions based upon these assumptions would be insufficient.
- 1.46 NRW considers that the worst case scenario evidenced in the assessment is insufficient with regards to wind speeds. The 30 knot wind is a force 7 wind. For example, evidence from the Shoreline Management Plan for Cardigan Bay shows the most common wind speed is force 4-6, suggesting that for much of the time seas are less rough than the worst case scenario, providing the potential for oil to travel further before being dispersed. We would advise a review on whether a 30knot wind speed represents a worst case scenario with regards to potential impacts to designated habitats and species.
- 1.47 Furthermore, calculations do not appear to take account of current velocity. Typically a slick will travel at the same speed as a surface current. Given that the coast of Wales has highly variable tidal velocities this may have more of a control on the fate of a spill. For example, peak spring tidal velocities are particularly strong around the west coast of Pembrokeshire (e.g. Ramsey Island, Skomer, Grassholm), Western Llyn Peninsula (Bardsey Island) and NW Anglesey with spring velocities in the range of 2 m/s (Atlas of UK Marine Renewable Energy Resource). It is stated that the stochastic modelling results highlighted in *table 6.1* have included metocean inputs but these have not been discussed further and no worst case tidal velocities have been provided. NRW consider that, although a 24km threshold may be appropriate at this plan level stage, some consideration should be given to the importance of current velocities when predicting spill impacts. Accordingly, for site specific assessments more detailed predictions of slick trajectory using both worst case estimates of wind speed and current velocity should be included (i.e. unidirectional wind speed and spring tidal velocities).
- 1.48 NRW also strongly advise that at plan-level, and following the precautionary principle (and in light of our other comments on worst case scenario and modelling), that spill effects (particularly from the Pembrokeshire/Cardigan Bay quadrant) to relevant sites (E.g. Cemlyn Bay SAC) in North West Wales and Anglesey should also be assessed. NRW would welcome the opportunity to further advise on sites for consideration.
- 1.49 NRW note that the models used to make predictions about spills date back to 2005. We advise that significant improvements to modelling of climate, data and subsequent predictions have been made since 2005, and predictions made from such models may not be adequate.

- 1.50 NRW notes inconsistencies within the AA with regards to the strength of tidal currents in Liverpool Bay. For example, on p. 21 the currents are described as ‘strong’ to suggest dispersal rates would be high, whereas the site description of Liverpool Bay on p.142 describes the currents as ‘weak’. We advise that the average currents are low to moderate in Liverpool Bay, as evidenced in the SEA6 assessment of hydrography¹³, which should be taken into account within this assessment. Further information within the report would also be useful to this assessment.
- 1.51 NRW advise that the potential issue of sediment contamination from spills has not been adequately covered for locations where beaching of spills is possible. Long-term impacts of accumulated oil and contaminants need to be considered in habitats other than saltmarsh. Similarly the risk of contaminant release from historically polluted sediments through drilling or physical disturbance of the seabed (likely to be most relevant to Liverpool Bay) is also possible (although the effects could be localised). NRW consider that the potential impacts to habitat features have been inadequately considered within the AA.

Cumulative and In-combination effects

- 1.52 NRW consider that the in-combination assessment is predominantly based on interactions with the offshore wind industry and inadequately covers other industries which have the potential to have in-combination effects with the 28th round (E.g. aggregates extraction, Wave and Tidal and other Oil & gas in the area). Whilst it may not be possible to consider cumulative effects in any detail, e.g. because the location and/or timing of development is not known, the HRA must be able to demonstrate that in-combination effects have been considered adequately. Furthermore, before the plan level HRA can conclude no adverse effect on site integrity, any mitigations that the plan level HRA relies on must be clearly identified.
- 1.53 In section 7.4.2 Physical presence: The displacement effect of rigs on Red-throated divers in Liverpool Bay is not considered. NRW consider this to be an activity which would have the potential to cause in-combination effects.
- 1.54 NRW note that cumulative impacts are not considered (consideration in light of work block programmes states “N/A”) for Grassholm SPA and Skokholm and Skomer SPA (*Table B2*, p.111). However, ‘potential in-combination effects with renewable energy developments’ are considered against other SPAs.
- 1.55 In general, we note that the assessment of in-combination impacts against each of the relevant sites in *Table B2* is incomplete. It is not clear whether “N/A” refers to the absence of any effect or that this interaction has not been considered.
- 1.56 MOD firing ranges at Castlemartin (Pembrokeshire) and Aberporth (Cardigan Bay) have the potential to cause disturbance to both mammal and bird species in-combination. This is particularly relevant for Aberporth MOD, a test, evaluation and training air range facility which extends over a large portion of the St George’s channel blocks with a 3 year marine license (until October 2017) to deposit 300 tonnes of ammunition per annum. We suggest that the impacts of MOD firing activities in terms of direct killing or injury, disturbance and displacement should be discussed further and the extent of the MOD firing ranges be added to the map in *Figure 7.1*.

¹³ DTI. SEA6 Hydrography of the Irish Sea. Available at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/197294/SEA6_Hydrography_POL.pdf

1.57 In section 7.3, the AA states that “given the limited and temporary nature of the proposed seismic surveys and mitigation measures available (including HRA), they are unlikely to result in significant in-combination effects with piling noise associated with offshore wind farm construction.” We note that current mitigation measures only ensure that marine mammals are not in the immediate vicinity of the noise source prior to commencement of operation, in order to minimise risk of auditory injury. The mitigation measures do not serve to reduce the level of noise. Therefore, if operations were to coincide with other operations producing noise e.g. pile driving, NRW advise that significant in-combination effects could not be ruled out. NRW would welcome discussion with DECC on the timing of activities and mitigation measures planned.