



Hornsea Project Four

Assessment of Common Scoter and Red Throated Diver within the ECC

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**Review of Hornsea Four's Export Cable Corridor 2 km Buffer
Overlap of Greater Wash SPA**

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1. Introduction

- 1.1.1.1 Orsted Hornsea Project Four Limited (hereafter the ‘Applicant’) is proposing to develop Hornsea Project Four Offshore Wind Farm (hereafter ‘Hornsea Four’). Hornsea Four’s proposed array area is located approximately 69 km offshore, to the east of the East Riding of Yorkshire, in the Southern North Sea and will be the fourth project to be developed in the former Hornsea Zone, should it receive consent. Hornsea Four includes both offshore and onshore infrastructure, including an offshore generating station (the offshore wind farm (OWF)), export cables to landfall and connection to the electricity transmission network. Detailed information on the project design can be found in **Volume A1, Chapter 4: Project Description (REP1-004)**, with detailed information on the site selection process and consideration of alternatives described in **Volume A1, Chapter 3: Site Selection and Consideration of Alternatives (APP-009)**.
- 1.1.1.2 The original Hornsea Four Agreement for Lease (AfL) area from The Crown Estate (TCE) was 846 km², which was used at the Scoping phase to assess initial project plans. In the spirit of keeping with Hornsea Four’s approach to incorporate proportionate Environmental Impact Assessment (EIA) methods, the Applicant has given due consideration to the size, scale and location (within the existing AfL area and export cable corridor) of the final project that is being taken forward to Development Consent Order (DCO) Application. This consideration is captured internally as the “Developable Area Process”, which includes physical, biological and human constraints in refining the developable area, balancing consenting and commercial considerations with technical feasibility for construction.
- 1.1.1.3 The combination of Hornsea Four’s proportionality in EIA and the Applicant’s Developable Area Process has resulted in a marked reduction in the array area taken forward at the point of DCO application. Hornsea Four adopted a major site reduction from the array area presented at Scoping (846 km²) to the Preliminary Environmental Information Report (PEIR) boundary (600 km²), with a further reduction adopted for the Environmental Statement (ES) and DCO Application (486 km²) due to the results of the PEIR, technical considerations and stakeholder feedback. It also included a reduction to the width of the original export cable corridor (ECC) from the array area to the cable landfall from Scoping to PEIR, in response to stakeholder requests, which now avoids any direct overlap with the Greater Wash Special Protection Area (SPA). The evolution of the Hornsea Four Order Limits is detailed in **Volume A1, Chapter 3: Site Selection and Consideration of Alternatives (APP-009)** and **Volume A4, Annex 3.2: Selection and Refinement of the Offshore Infrastructure (APP-037)**.
- 1.1.1.4 The Applicant submitted a DCO Application to the Planning Inspectorate (PINS), supported by a range of plans and documents including a **B2.2 Report to Inform Appropriate Assessment Part 1 (APP-167)**, which sets out the information necessary for the competent authority (the Secretary of State (SoS) for the Department for Business, Energy & Industrial Strategy (BEIS)) to undertake an Appropriate Assessment (AA) to determine if there is an Adverse Effect on Integrity (AEoI) on qualifying features of designated sites of European importance (Special Protection Areas (SPAs)) and of international importance (Ramsar sites) as a result of the development of Hornsea Four (alone and or in-combination with other plans or projects).

2. Summary of Greater Wash SPA red-throated diver and common scoter displacement assessment

- 2.1.1.1 As detailed within **B2.2 Report to Inform Appropriate Assessment Part 1 (APP-167)** a potential Likely Significant Effect (LSE) was identified and screened in for assessment in relation to the red-throated diver, *Gavia stellata*, and common scoter, *Melanitta nigra*, qualifying features of the Greater Wash SPA. This was in relation to the export cable laying activities during the construction phase within Export Cable Corridor (ECC) potentially being the cause of disturbance and displacement of sensitive seabirds surrounding cable laying vessels and out to a 2 km buffer. The method for estimating the potential abundance and density of red-throated diver within the ECC and 2 km buffer was agreed with Natural England (**OFF-ORN 2.39, B.1.1.1 Evidence Plan (APP-130)**) and is detailed in **Volume A5, Annex 5.2: Offshore Ornithology Displacement Analysis (APP-075)**. For common scoter the predicted number of birds within the ECC plus a 2 km buffer was derived from the Lawson et al., (2016) density data, as presented in **Figure 1**. Assessments relating to these two species need to consider the following conservation objectives as a feature of the Greater Wash SPA:
- Maintain the population of each of the qualifying features; and
 - Maintain the distribution of qualifying features within the site.
- 2.1.1.2 Within the entire Hornsea Four ECC and 2 km buffer, for which the 2 km buffer has a minor overlap with the Greater Wash SPA, the maximum abundance of red-throated diver and common scoter within a 2 km buffer of an export cable laying vessel was estimated to be three and nine, respectively (or a range of between two and three red-throated divers and between zero and nine common scoter), as detailed in **B2.2 Report to Inform Appropriate Assessment Part 1 (APP-167)**.
- 2.1.1.3 The citation population of red-throated diver and common scoter is classified as 1,407 and 3,449 individuals, respectively. This means that even when considering a maximum displacement rate of 100%, the maximum proportion of the SPA population for either species displaced would equate to approximately 0.21% for red-throated diver and 0.26% for common scoter. Estimated mortality as a consequence of displacement was assessed on the basis of 1% of displaced birds being potentially subject to mortality for both red-throated diver and common scoter. This level of mortality was used as export cable laying activities are known to be both spatially and temporally limited, so would be of limited consequence to any birds. Using a 1% mortality rate results in 0.03 red-throated diver and 0.09 common scoter subject to displacement consequent mortality per annum, which is well below one bird per annum for both species, considered to be a limited adverse effect of no significance.
- 2.1.1.4 Furthermore, as presented in **Figure 1** Error! Reference source not found. and **Figure 2**, which are extracted from Lawson et al., (2016), the main aggregations of red-throated diver and common scoter are found to the south of the Greater Wash SPA, associated with the Wash estuary. Therefore, as the higher densities are significantly further south from the ECC and under no influence from Hornsea

Four's export cable laying activities there would also be no distributional effect on the population as a consequence of the Hornsea Four export cable laying activities within the ECC.

- 2.1.1.5 Based on this evidence it was concluded within Section 10.4.3 of **B2.2 Report to Inform Appropriate Assessment Part 1 (APP-167)** that there is no potential for an AEoI to the conservation objective to maintain the population of either of the qualifying features of the Greater Wash SPA from disturbance and displacement from cable laying activities within the ECC during the construction phase from export cable laying. Therefore, subject to natural change, the qualifying features will therefore be maintained as a feature in the long-term. This was due to any potential displacement being extremely small scale (between two to three red-throated divers and between zero and nine common scoter) and limited to a mortality rate of well under one individual for both species per annum when applying the Applicant's 1% mortality rate.

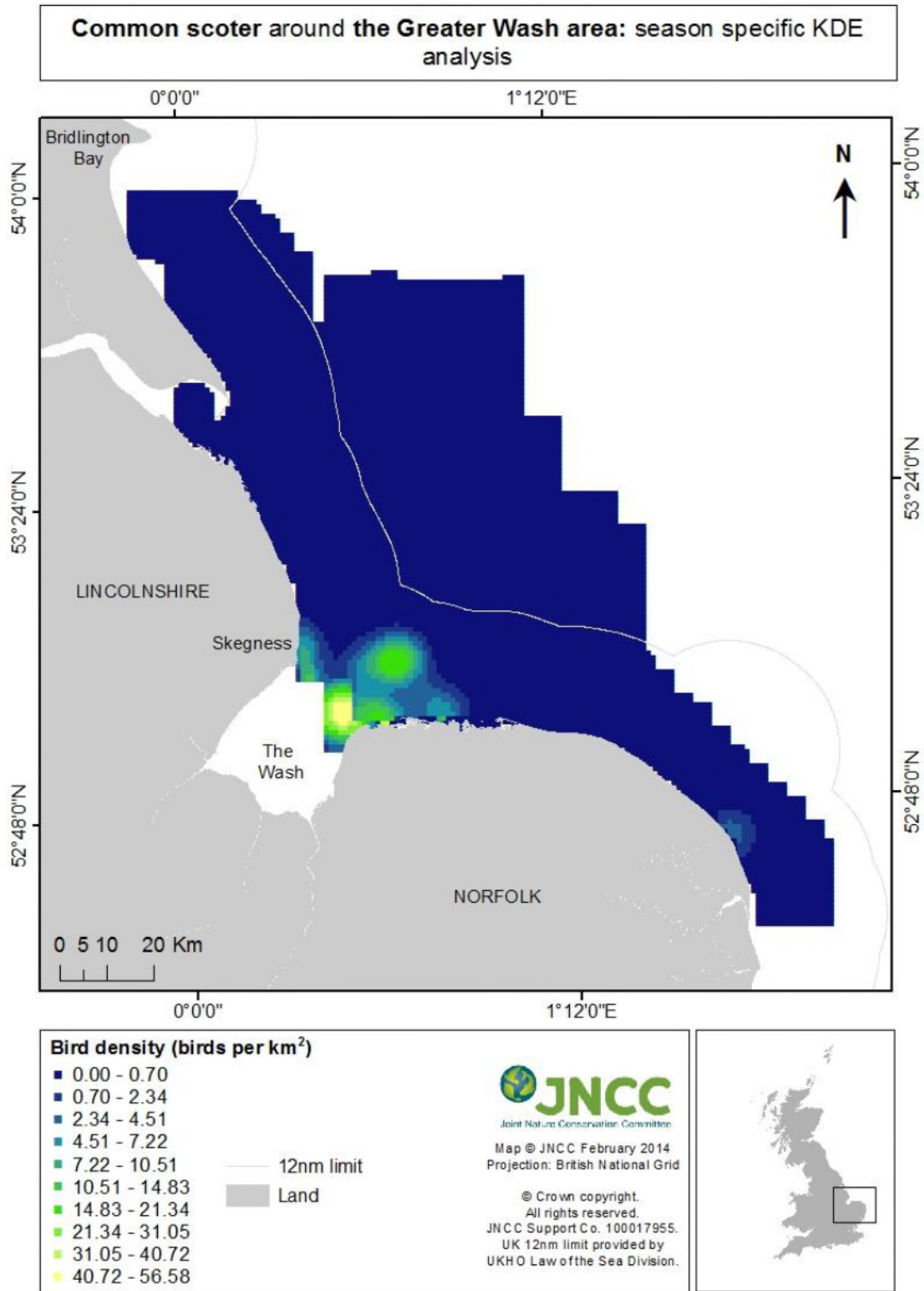


Figure 1 Estimated mean density surface of common scoter from aerial surveys within the Greater Wash AoS (2002/03, 2004/05, 2005/06, 2007/08) (Lawson et al 2016). This map was derived from an analysis that pooled all data recorded in a winter season. Subsequently a density surface was produced for each season (resulting in four seasonal density surfaces), and a mean density surface produced from these.

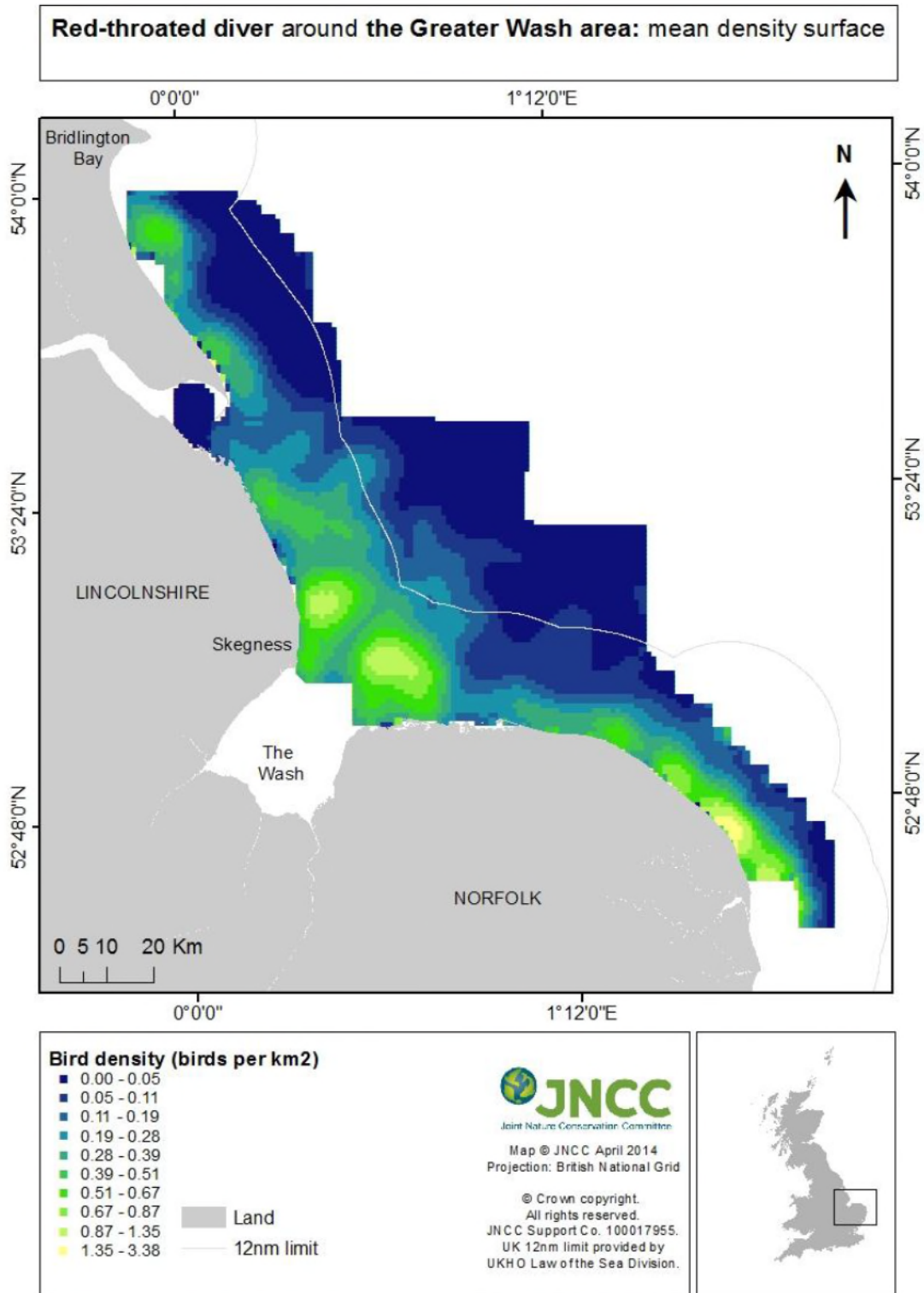


Figure 2 Estimated mean density surface of red-throated divers recorded during WWT Consulting aerial surveys within the Greater Wash AoS (2002/03, 2004/05, 2005/06) (Lawson et al 2016).

3. Updates to assessment of Greater Wash SPA since DCO

Application

- 3.1.1.1 Prior to the submission of the Hornsea Four DCO Application, a draft copy of the Hornsea Four ES was shared with Natural England for consultation on the 21st May 2021. In relation to the assessment of the Greater Wash SPA Natural England requested the following:
- 3.1.1.2 *“Hornsea 4 has assessed impacts on red-throated diver in terms of abundance impacts only in relation to the population of the Greater Wash SPA, however it is not clear whether there is any overlap between the 2km cable buffer and the SPA boundary. If there is overlap then additional conservation objectives relating to distribution and habitat extent would need to be considered (not just impacts on abundance).”*
- 3.1.1.3 Natural England’s initial response was received too late for including in detail within the DCO Application. However, in response to Natural England’s request the Applicant has provided clarity in **Section 3** on the quantification of overlap between a 2 km buffer from the Hornsea Four ECC and the Greater Wash SPA with more additional evidence in support of the conclusion of no AEol from Hornsea Four with regards to the conservation objective to maintain the distribution of qualifying features within the site.
- 3.1.1.4 Natural England requested within their Relevant Representations (**RR-029**) that the Applicant should also consider the following for Greater Wash SPA assessments of red-throated diver and common scoter:
- 3.1.1.5 *“As definitive mortality rates for red throated divers and common scoter are unknown, NE advise a range of figures for mortality rates of between 1% and 10% are considered for assessments (for impacts from array, construction and cable laying vessels). Assessing at 1% mortality is not sufficiently precautionary.”*
- 3.1.1.6 When considering a displacement rate of 100% and Natural England’s upper range of 10% mortality, the maximum number of red-throated diver and common scoter predicted to be subject to mortality equates to less than one individual (0.3 & 0.9 individuals, respectively). It should be noted that such a high level of mortality is highly unlikely to result from any export cable laying activities, as they are both spatially and temporarily limited and if any mortality were to result from such activities it is more likely to be a maximum of 1% or more likely lower. In order to demonstrate that the use of 10% mortality would also not lead to an AEol on either qualifying feature from the Greater Wash SPA this level was determined to lead to a maximum predicted increase in mortality relative to baseline mortality of 0.13% for red-throated diver and 0.12% for common scoter qualifying features of the Greater Wash SPA. This level of predicted increase in baseline mortality would be indistinguishable from natural fluctuations in the population, therefore, based on this assessment there is no potential for an AEol to the conservation objective to maintain the population of either of the qualifying features of the Greater Wash SPA from disturbance and displacement from export cable laying activities within the ECC and out to a 2 km buffer during the construction phase of Hornsea Four

alone and therefore, subject to natural change, the qualifying features will therefore be maintained as a feature in the long-term.

3.1.1.7 Natural England also requested the following within their Relevant Representations (**RR-029**):

Natural England consider that an in-combination assessment for red-throated diver and common scoter should be undertaken despite the alone assessment concluding the potential for no material contribution to baseline mortality. If the predicted impacts do not exceed 1% baseline mortality thresholds within the displacement mortality range considered by NE for the species, then they do not need to be considered further.

3.1.1.8 In response to Natural England's request the Applicant has provided clarity in **Section 0** on the approach to the criteria for considering in-combination assessments for all species, including why the red-throated diver and common scoter qualifying features of the Greater Wash SPA were not subject to such an assessment.

4. Quantification of ECC 2 km Buffer Overlap

- 4.1.1.1 The ECC submitted at Scoping included an overlap with the northernmost reaches of the Greater Wash SPA. Ahead of PEIR, Hornsea Four undertook a further route selection refinement for the ECC, in response to stakeholder requests and **Scoping Opinion (APP-235)**, to not run directly through the Greater Wash SPA. As a consequence of the route selection refinement process the ECC at the point of DCO Application avoids any direct overlap with the Greater Wash SPA and therefore avoids areas designated for hosting red-throated diver and common scoter, though the highest densities for both species are to the south of the SPA.
- 4.1.1.2 For assessment purposes, disturbance and displacement from export cable laying activities during the construction phase of Hornsea Four were agreed to be assessed out to 2 km from the cable laying vessel within the ECC for both red-throated diver and common scoter. The maximum extent that the 2 km buffer surrounding the ECC that may therefore overlap the Greater Wash SPA is presented in **Figure 3** and **Figure 4**. The current Greater Wash SPA is approximately 3,536 km², whilst the entire Hornsea Four ECC 2 km buffer overlap is calculated as approximately 15 km². This represents a proportion of overlap of the 2 km buffer into the Greater Wash SPA of a maximum 0.4% of the entire SPA, which is considered to be insignificant. However, any disturbance and displacement effects are only related to the main export cable laying vessel itself and a 2 km buffer surrounding it, so therefore the extent of any overlap at any given period of time is significantly less than the entire 2 km buffer overlap.
- 4.1.1.3 When considering the limited spatial nature of export cable laying activities, the maximum area of influence from a 2 km buffer surrounding the export cable laying vessel is 14.66 km². However, potential overlap of this area of influence with the Greater Wash SPA would only occur if the final cable route is situated along the southern edge of the ECC, with any areas to the north of the cable laying vessel being outside of the Greater Wash SPA. When considering a cable laying vessel operating at the southern edge of the ECC the spatial overlap of the 2 km buffer would amount to a maximum of 4.41 km² and minimum of 1.73 km², as the area to the north of the cable laying vessel at this location would not overlap with the SPA (**Figure 4**). Therefore, during the cable laying the amount of overlap with the Greater Wash ECC would be between a maximum of 0.12% and a minimum of 0.05% of the entire SPA at any point in time during the export cable laying period. Even when considering the maximum level of disturbance, if export cable laying is along the southern limit of the ECC, this represents an insignificant effect both spatially and temporally, therefore any effects would not significantly alter the spatial distribution of either the red-throated diver or common scoter features of the Greater Wash SPA as a result of export cable laying activities from Hornsea Four. This evidence further supports the conclusion of no AEoI, beyond scientific doubt, in relation to the conservation objective to maintain the distribution of the red-throated diver and common scoter qualifying features within the Greater Wash SPA.
- 4.1.1.4 Considering the above information it is clear that there is limited spatial and temporal overlap of a 2 km buffer surrounding export cable laying activities within the Hornsea Four ECC and the Greater Wash SPA. The combination of minimal

numbers of red-throated diver and common scoter predicted to be at risk of displacement from Hornsea Four's export cable laying activities with the limited spatial and temporal extent of any effects confirms that the distribution of these two qualifying features will not be materially affected due to disturbance and displacement during the construction phase of Hornsea Four. Therefore, subject to natural change, both the red-throated diver and common scoter distribution within the SPA will be maintained in the long-term with respect to the potential for adverse effects from disturbance and displacement.

5. Criteria and Methods for In-combination Assessments

- 5.1.1.1 The Applicant undertook HRA Screening alone for offshore ornithology taking a precautionary approach, in response to discussions with Natural England during the Evidence Plan Process (**OFF-ORN-5.1 to 5.9, B1.1.1: Evidence Plan (APP-130)**), with that level of precaution being taken into account within the subsequent in-combination assessment. In order to understand this process a summary of features and designated sites considered for each potential impact pathway that are assessed or not assessed in detail in-combination are provided in Section 11.4 of **B2.2 Report to Inform Appropriate Assessment Part 1 (APP-167)**.
- 5.1.1.2 Therefore, for clarity and in response to the precautionary HRA Screening undertaken for offshore ornithology alone, the subsequent assessment in-combination in Section 11.4 of **B2.2 Report to Inform Appropriate Assessment Part 1 (APP-167)** is focused on those designated sites and species for which there is potential for a material contribution from Hornsea Four alone (as confirmed in the assessment alone in Section 10.4 of **B2.2 Report to Inform Appropriate Assessment Part 1 (APP-167)**). Where an effect from Hornsea Four alone was determined to be trivial and inconsequential that would be well within the error margins of the assessment (as confirmed in the assessment alone in Section 10.4 of **B2.2 Report to Inform Appropriate Assessment Part 1 (APP-167)**), such features and designated sites are not assessed further as there is no potential for any contribution for an in-combination effect to occur.
- 5.1.1.3 Following this approach and in recognition that there would be no material contribution from Hornsea Four to any in-combination displacement effects relating to the red-throated diver and common scoter features of the Greater Wash SPA such an assessment was not deemed appropriate.

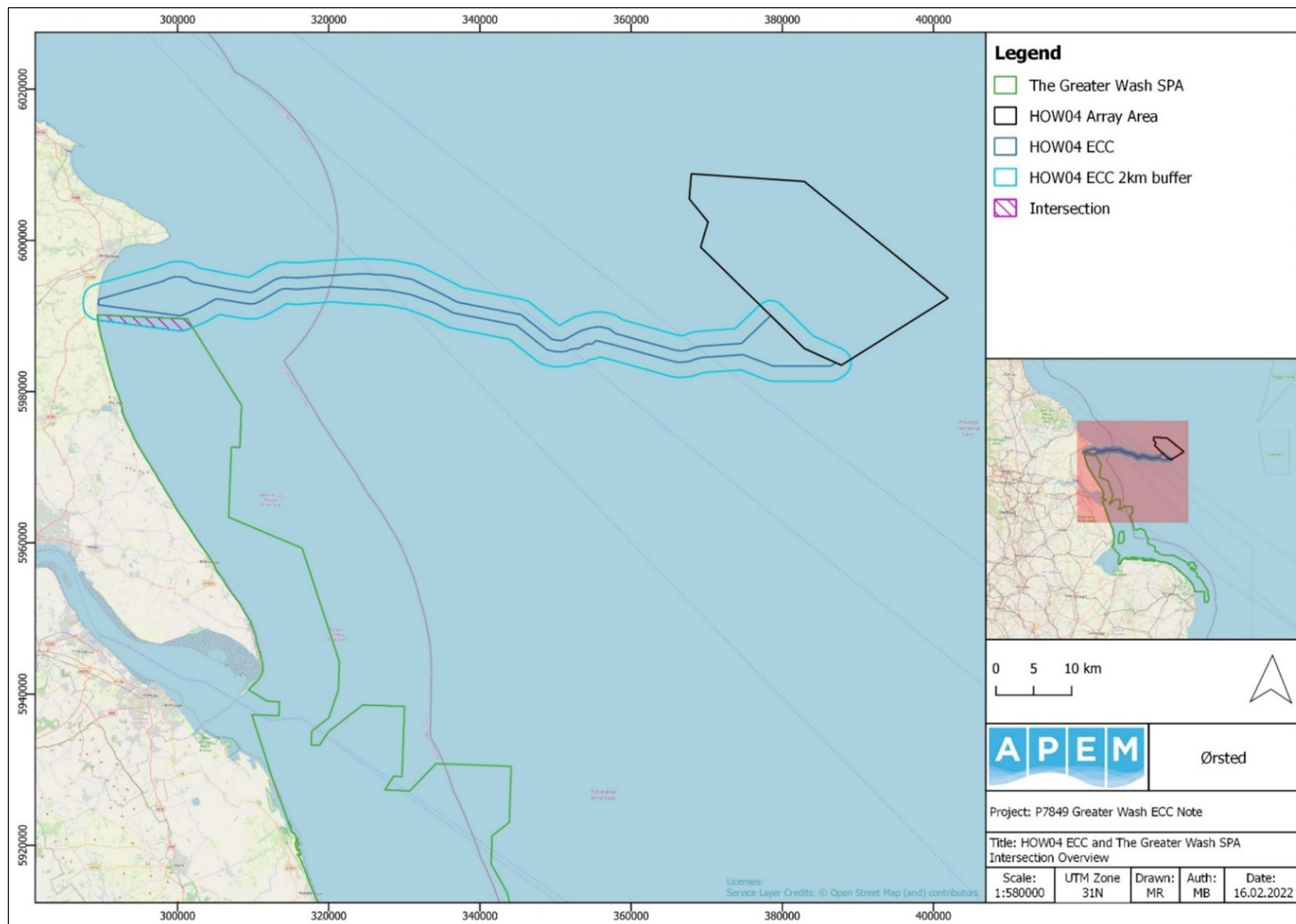


Figure 3 Overview of the ECC intersection with The Greater Wash SPA.

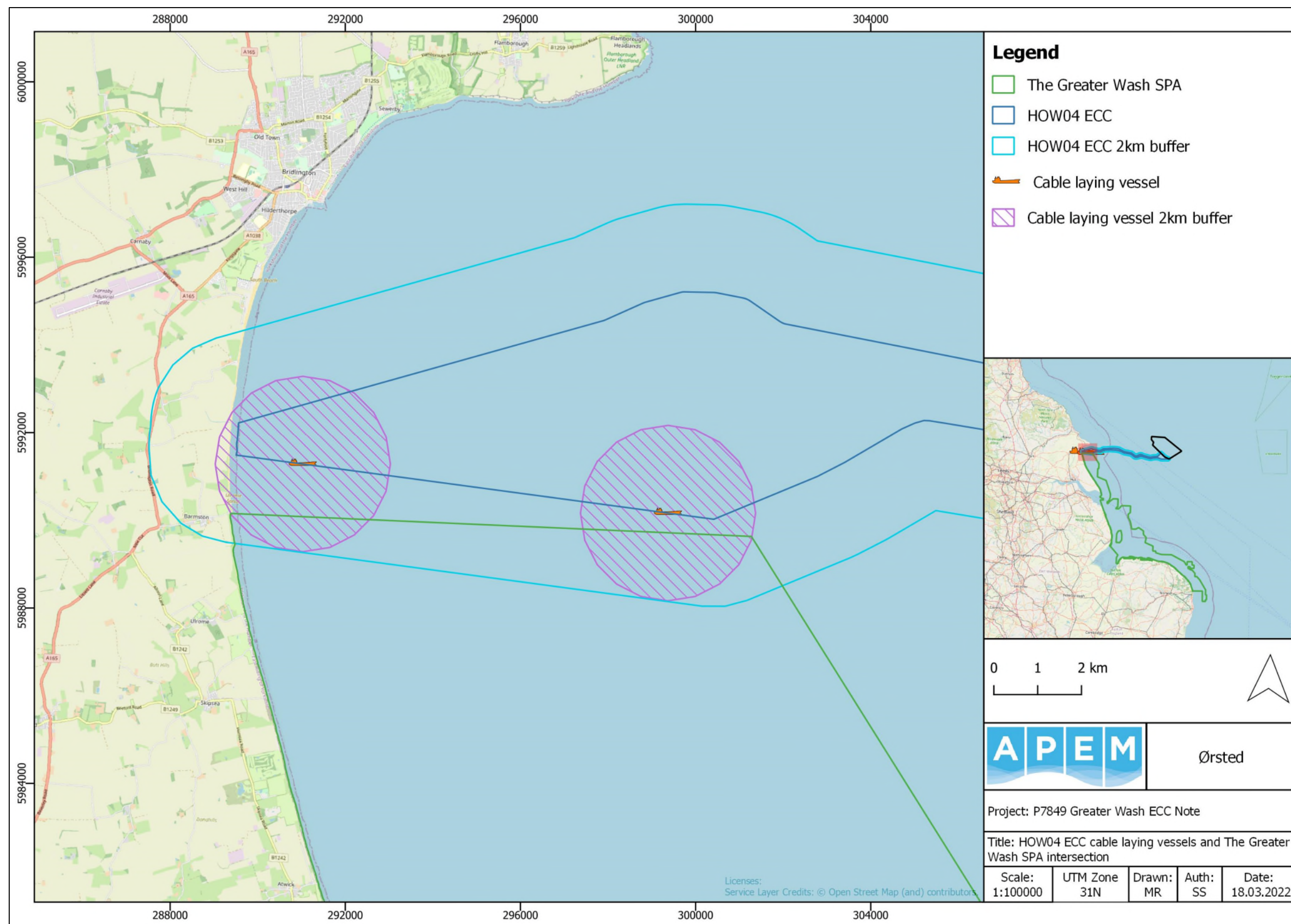


Figure 4 Detailed view of the ECC cable laying vessel 2 km buffer intersection with The Greater Wash SPA.

6. References

Lawson, J., Kober, K., Win, I., Allcock, Z., Black, J. Reid, J.B., Way, L. & O'Brien, S.H. (2016). An assessment of the numbers and distribution of wintering red-throated diver, little gull and common scoter in the Greater Wash. *JNCC Report No 574*. JNCC, Peterborough.