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Dear Prof Glasson,

Hornsea Offshore Wind Farm (Zone 4) – Project Two Application

Whale and Dolphin Conservation (WDC) comments on request for further information on item 11 - on the submission by the Wildlife Trusts (TWT) for Deadline 5 in relation to marine mammals and the potential Southern North Sea draft Special Area for Conservation (dSAC) for harbour porpoise.

The Applicant's addendum to its Habitat Regulation Assessment (HRA), in relation to consideration of the dSAC is not able to conclude 'no adverse impact on integrity'.

WDC agree with the Wildlife Trusts (TWT) that the applicant is unable to conclude that there will be no adverse impact in relation to the draft harbour porpoise SAC from the development of Hornsea Offshore Wind Farm (Zone 4) – Project 2.

Until the features of the dSAC are defined and management options are finalised, it is impossible to state that there will be 'no adverse impact on integrity'. The plans for Hornsea 2 are highly likely to interfere with conservation and management objectives of the dSAC for harbour porpoises, therefore the current HRA is not sufficient and will need to be reviewed. We believe that significant changes will be needed once the site boundaries and conservation and management objectives are known.

We do note that currently there are no finalised site boundaries or conservation and management objectives available, which makes it difficult for the applicant to undertake a comprehensive HRA. We recommend that the current HRA is treated as a temporary assessment until the site boundaries and conservation and management objectives of the dSAC are available, at which point a full and robust HRA must be undertaken.

It is fundamentally incorrect to assess the effect on site integrity by predicting whether the impact will affect the whole North Sea population.

A population level assessment, rather than site related assessment, is fundamentally incorrect for assessing the effect on site integrity. The designation of the site will afford the qualifying feature (in this case harbour porpoise) site based protection, and the need for site based protection for harbour porpoise in the UK has been recognised by the European Commission. Site based protection cannot be met by assessing the whole North Sea population, but only by assessing the impacts for the number of individuals that are supported by the site (see Rees *et al.*, 2013, for example).

The aim of the HRA is to identify any aspects of the development that would have the potential to cause



a likely significant effect on Natura 2000 or European sites, which includes SACs. These assessments focus on the qualifying interests of the Natura site affected and consider any impacts on the conservation objectives of the site.

We do not believe that the requirements for site based protection can be met if the North Sea population is assessed rather than the population at the site, and agree with TWT that this approach would not be valid once the dSAC consultation process begins.

There is enough doubt and uncertainty as to the population consequences of disturbance at either a site or population level.

It is well known that the research conducted into the impacts of offshore wind farms has, so far, mainly been short-term and studied the impacts of construction. Therefore very little is known about the operational, decommissioning and long-term impacts of offshore wind farms on harbour porpoise populations.

As a result there are high levels of uncertainty as to what the consequences of disturbance at both the site and population level may be, and we believe there is insufficient evidence to be able to prove that there are no long term population consequences of disturbance to conclude 'no adverse effect on integrity'. We strongly disagree with the applicant's claim that there will be no long term change in the range or availability of habitat for the harbour porpoise. Indeed, we refer to you the latest evidence of impacts associated with pile driving in the North Sea (Heinis and de Jong, 2015).

The applicant states that the percentage of the population that will be displaced will not cause long term detriment to the population, however as we note above, there is no evidence to support this claim. Studies have shown that harbour porpoises that leave an area during the construction did not later return to their usual numbers, and there is uncertainty if the same animals are returning; this is detailed further below (Carstensen *et al.* 2006, Skeate *et al.*, 2012).

The applicant also states in the HRA that 'since harbour porpoise may range over large distances, it can be assumed that, given the extent of similar habitat throughout the North Sea, it is unlikely that displacement would lead to any population-level effects'. We agree with TWT that this assumption is not valid, as the North Sea does not have an even distribution of harbour porpoises and different areas are preferred for different activities e.g. foraging. This is highlighted by the fact that the Hornsea area has been identified as an important area for harbour porpoises. Therefore any displacement from the Hornsea area will be more significant than other areas of the North Sea and these animals may not be able to find suitable alternative foraging areas.

The HRA must consider not only the project independently, but also cumulatively taking into account other plans and projects that will impact the harbour porpoise at both a site and population level. We do not believe that this has been undertaken sufficiently in either the EIA or HRA and do not agree with the applicants conclusion that there will be 'no adverse effect on integrity'.

That a high level of impact would result from the scenario of pile driving, with no guaranteed mitigation of reduction of noise at source.

Hornsea Offshore Wind Farm (Zone 4) – Project Two is partially located within one of the dSAC boundaries, and the impact from the potential pile driving has the potential to significantly impact a large area of the dSAC, as well as two areas identified as areas of interest for harbour porpoises (Clark *et al.* 2010, Dolman *et al.* 2013).

As detailed further in WDC's written representation (and further detailed in James, 2013), reactions of harbour porpoises to the pile driving process have been recorded at distances up to 15 km from the

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piling site (Carstensen *et al.*, 2006). Thomsen *et al.* (2006) found that the noise generated by the construction of offshore wind farms was loud enough to be audible by harbour porpoises beyond 80 km from the source and could mask communication at 30 – 40 km. The research conducted so far has shown the potential for pile driving to cause behavioural changes in harbour porpoises which leave the area during construction and in some instances did not later return to their usual numbers (Carstensen *et al.* 2006, Skeate *et al.*, 2012). Even where areas have been recolonised, it is not clear if these are the same animals returning or new animals moving into the area.

The research so far has been conducted on wind farms where there has been single piling activity. The applicant states that there could be 2 vessels driving piles at any one time, and that pile-driving will start at one site, and then continue at another (which may be adjacent to the pile already being driven or in another area of the wind farm). This will have a cumulative effect as this will increase the noise levels generated and will likely have a further range and a higher impact on the harbour porpoise population at the dSAC and neighbouring areas.

WDC note that the maximum construction period of Hornsea Offshore Wind Farm (Zone 4) - Project Two would be 5 years, and the minimum 4 years, and that harbour porpoises would be excluded from the site for the duration of the pile-driving. This is a very significant impact on harbour porpoise population at the dSAC site. The average lifespan of a harbour porpoise is 8-10 years, reaching sexual maturity at 3-4 years and calving every 2 years; therefore the impact of pile driving for 5 years on the harbour porpoise population at the site is likely to be very significant as it will cover the majority of the lifespan of a porpoise and potentially effect breeding and feeding activity.

Currently there are no proven mitigation methods for reducing noise generated during pile driving.

Wilke *et al.* (2012) tested five different noise mitigation systems for reducing noise generated during pile driving at a test pile in the Baltic Sea, including various bubble curtains, fire hose curtains and a system that uses air bubbles with fixed, firm bubbles of defined size and shape that are connected to a net. Overall the results showed a broad-band reduction of 7-9 dB SEL. Although these initial findings are encouraging, they have not yet been proven on a full-scale development.

The applicant states that any soft-start will take place for 30 minutes before ramping up to encourage marine mammals to leave the area, if they are required. However, soft starts are only a reduction in sound source at the initiation of a piling event, not throughout the piling process and therefore they cannot be considered an adequate mitigation measure to ensure there are no significant impacts. Whilst a common sense measure, soft start is not a proven mitigation technique and so cannot be relied upon to mitigate impacts, especially for developments within a dSAC site.

Due to the known impacts of pile driving on harbour porpoises, there is likely to be a significant impact on the population in the dSAC. The best method is to avoid pile driving altogether.

We hope you find these comments useful and would be happy to discuss any of them further.

Yours Sincerely,



Vicki James
Science Officer

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