

Avoidance behaviour at offshore windfarms: a new joint industry approach

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Background

Current models of collision risk to birds from offshore wind turbines are heavily dependent on estimates of avoidance rates. Validation data for these models, in the form of measurements of avoidance rates and direct observations of collisions at sea, are rare. The gathering of validation data is key to improving our understanding of the impacts of offshore wind energy developments and better informing the decision-making process. The offshore wind industry, Marine Scotland, DECC and The Crown Estate are now working jointly to address this UK wide strategic issue.

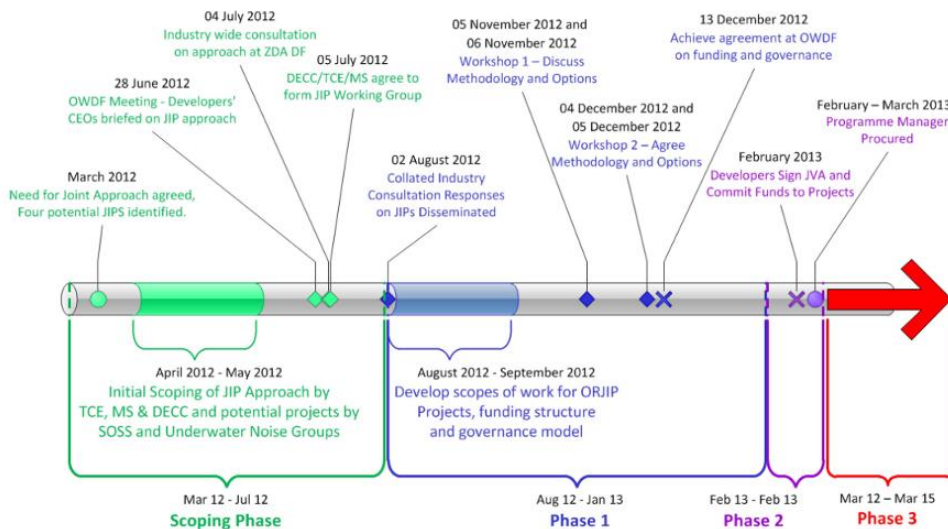


Offshore Renewables Joint Industry Programme

The Offshore Renewables Joint Industry Programme (ORJIP) is being established to manage a range of strategic offshore research projects designed to improve our understanding of key consent risks to planned offshore windfarm developments. The body of work being proposed within the programme represent significant research challenges of a biological, ecological and engineering nature. Funding from industry and government bodies is needed to deliver the work.

One of the priority projects is the planned collaborative monitoring study of bird avoidance behaviour at operational wind farms. The other three priority projects focus on the effects of marine renewables on marine mammals and include: investigating the population consequences of those effects, developing mitigation technologies for pile driving and developing improvements to standard noise mitigation measures prior to pile driving.

Figure 1: Timeline for the Offshore Renewables Joint Industry Programme



Previous avoidance behaviour studies

Several studies of bird behaviour have been undertaken that provide limited empirical evidence to inform collision risk models, using a range of methods. At Blyth in northeast England, shore based watches were undertaken (Rothery *et al.*, 2009). Observations at Zeebrugge have recorded significant effects on a breeding tern colony due to collisions (Everaert & Stienen, 2007). Studies at Danish and Dutch offshore windfarms have combined radar techniques with species identification by field observers (Petersen *et al.*, 2006; Krijgsveld *et al.*, 2011).

Why this proposal?

The proposed study aims to measure avoidance behaviours at operational offshore windfarms that are representative of conditions at the current proposed offshore windfarms in the UK. It is likely to use a variety of technologies to measure behaviours at a range of spatial scales (e.g. evasive movement relative to blades, movement between turbines, and movement around wind farms or turbine arrays). The study will seek to improve our understanding of behaviours at a species level, with a focus on species that are considered potentially sensitive to collision risk, such as gulls (Furness & Wade, 2012).



References:

- Everaert, J., and Stienen, E.W.M. 2007. Impact of wind turbines on birds in Zeebrugge, Belgium. *Biodiversity and Conservation* 16: 3345-3359.
- Furness, R.W., Wade, H. 2012. Vulnerability of Scottish seabirds to offshore wind turbines. Report to Scottish Government by MacArthur Green Ltd.
- Krijgsveld, K.L., Fijn, R.C., Japink, M., van Horsen, R.W., Heunks, C., Collier, M.P., Poot, M.J.M., Beuker, D., Dirksen, S. 2011. Effect studies at offshore wind farm Egmond aan Zee. Report by: Bureau Waardenburg.
- Petersen, I.K., Christensen, T.K., Kahlert, J., Desholm, M., & Fox, A.D. 2006. Final Results of bird studies at the offshore wind farms at Nysted and Horns Rev, Denmark. Report by: National Environmental Research Institute.
- Rothery, P., Newton, I. and Little, B. 2009. Observation of seabirds at offshore wind turbines near Blyth in northeast England. *Bird Study* 56: 1-14.