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Introduction

The Holderness Fishing Industry Group (HFIG) is a fishers organisation based in Bridlington, UK. HFIG represents vessels that prosecute the Holderness region operating from Bridlington, Hornsea and Withernsea, with a range of vessel length from 6 m – 15m. The fishery is predominantly a static gear fishery using strings of pots located on the seabed for differing periods of time to target Brown Crab and European Lobster (subsequently referred to as crab and lobster). The Holderness region represents the largest fishery in Europe for lobster (338 tonnes in 2020) and a substantial crab fishery (1900 tonnes in 2020). Both fisheries have seen an increase in both volume, and commercial value in recent years (13% combined increase since 2015). This is due to increased effort and efficiency within the fleets, increased market prices (specifically crab) and an outwards expansion of the fishery to grounds further offshore from traditional grounds.

The nature of the fishing practice (occupying an area of seabed for periods) requires considerable areas of the seabed, individual fishers can have strong fidelity to a particular site or area. These spatial needs often come into conflict with other marine users and fishery types. This is most prevalent in the region with regards to the recent expansion of the offshore wind energy sector, with the region currently seeing two nearshore developments in the operational phase (Westermost Rough and Humber Gateway) and considerable developments being undertaken in the offshore zone either operational (Hornsea One), under construction (Hornsea Two), consented (Creyke Beck developments) or pre-consent (Hornsea Four). All of which has involved disruption to the regional fishery through direct displacement of fishing effort through pre-construction surveys and through the construction phase.

Whilst HFIG have entered into co-existence agreements for other developments (specifically with Ørsted) we still have concerns with regards to the Preliminary Environmental Information Report (PEIR) and the data presented and assumptions

made with regards to the Commercial Fisheries and Fish and Shellfish Ecology Chapters (Chapters 3 & 7) and their associated technical reports. These concerns were raised and submitted as part of the public consultation, and we were unaware of the part of the process that required registration of the relevant representation status (having already consulted on the project). Therefore, the below information presented is in reference to HFIG being a relevant stakeholder where our members will be directly affected by the proposed Hornsea Four offshore wind farm and associated export cable corridor.

Fish and Shellfish Ecology PEIR

We are concerned about the lack of detail given to the shellfish element of this chapter and associated technical report. The Hornsea Four array and associated export cable corridor supports extensive crustacean fisheries, therefore the effects of construction and operation of the development on the resident crustacean populations is of considerable concern to the fishers whose livelihood depend on them. The chapter generally assesses the effects on shellfish as medium sensitivity with minor significance with no mitigation needed. However, we feel, the data used to make these assumptions is inadequate at best and generally poor with regards to the two crustacean species raised (crab and lobster). The use of mobile gear (otter and beam trawls) is suitable to assess fish assemblages, but with regards to these methods being used for crustaceans is scientifically inadequate. The fact that crabs were abundant, and lobster seen occasionally with these inappropriate methods highlights the importance of the area for these species. More suitable sampling, e.g., potting surveys, would have given a greater portrayal of the stocks structure and its susceptibility to construction and operation effects. Therefore, we believe that the PEIR has under-estimated the importance of these species to the Hornsea Four development areas. Additionally for crab and lobster, there was no site-specific assessment conducted. The assumptions presented were derived from studies undertaken for other developments. Studies using data from Hornsea Zone projects is understandable but presenting data from Triton Knoll (~55 km closest distance) and the Dogger Bank developments (~ 70 km closest distance) is not suitable. There is a contradiction in the evidence presented in this chapter. The chapter supports an assumption of low abundance in lobster and crab but refers to high exploitation rates

(CEFAS 2014 stock assessment), these directly contradict each other. The assessment for the behaviour responses of shellfish to the presence of the export cable was assessed as negligible. However, recent studies have highlighted that crustaceans, specifically crab species, demonstrate behavioural and physiological responses to the presence of EMF associated with sub-sea cables (Scott *et al.*, 2018, 2021). Whilst many of these studies are laboratory based, they still highlight possible long-term responses in the resident crab populations associated with a large power generating development such as Hornsea Four and are a direct concern of the fishers. Due to these concerns we as a fishery would like to see a pre- and post-construction monitoring project undertaken within the array and at extensive sites along the export cable route.

Commercial Fisheries PEIR

The commercial potting fisheries within this chapter, for the different stressors, are generally assessed as medium sensitivity with moderately adverse significance which are reduced to minor adverse when disruption payments following FLOWW guidelines are applied. We appreciate this presentation of a direct effect on the commercial fisheries prosecuting the development area and a commitment for mitigation. However, we also believe that the data presented vastly underestimated the extent and intensity of fishing activity taking place in the area. Vessel monitoring system (VMS) data was the predominant tool used to understand fishing activity alongside sighting from government agencies (e.g., NEIFCA, MMO). The VMS data only presented vessels that were over 15 m in overall length which actually represents a very small proportion of the fleet which is predominantly between 10 m and 12 m in length. Sightings data are also sporadic with no concerted effort made to capture fleet movements; it was only recorded during routine activities of the patrol vessel rather than a standardised protocol. These data lead to an under-representation of the size, intensity, and extent of the fishery. This leads to a flawed assumption that displaced vessels can fish in otherwise unfished areas as the data presented alludes to this possibility. The reality is that there are no other areas in the region that are not prosecuted that are economically viable and do not currently have fishers prosecuting the areas. This is also further compounded by potential conflict with other fishery types (under-estimated in this chapter) and the spatial squeeze of consecutive and parallel

marine developments in the region. The chapter discusses work undertaken in the export cable corridor scouting for fishing gear, these data are not presented within the chapter. These data could have demonstrated the importance of the area to the regional fisheries.

This chapter presented research undertaken by (Roach *et al.*, 2018) in the context of benefits of construction to fisheries, this was not however presented in the ecology chapter. This research was undertaken at a small-scale, inshore wind farm and specifically designed to understand the effects on lobster in the survey specifics such as bait used, and season surveyed. In comparison, the Hornsea Four project, is a large-scale, offshore development with a crab population as dominant crustacean species in the region. Assuming that benefits from one site can be transferred to another site that demonstrates very different ecology and environmental factors is flawed. The technical report behind the Roach *et al*., (2018) paper, actually highlighted a reduction in brown crab during the construction period, it was postulated to be an effect of increased lobster abundance being present but this was only postulated and not proven, therefore there may have been an effect on brown crab abundance that was not measured for (Roach and Cohen, 2015). Therefore, assumptions made from this work should be used with caution when predicting negligible effects and possible benefits.

This chapter, in response to queries about monitoring states maintaining liaison with the fishing industry as a commitment to monitoring. In our view this is not monitoring but best practice for the industries involved. Monitoring should involve assessing changes in fleet behaviour, landings, catch statistics and effort. There is no mechanism provided to monitor these possible changes. We appreciate the commitment to minimise disruption through closures and liaising these closure periods with industry.

Recommendations

- We would like to see a pre- and post-construction monitoring program initiated within the array and along the export cable corridor, using correct methodology and focussing on brown crab specifically.

- With the introduction of mandatory iVMS, there is an opportunity for industry and the developer to demonstrate displacement effects of a construction of this scale. We would like to see an initiative undertaken to investigate this possibility.
- Maintain the levels of engagement between the developer and the fishing industry.

References

Roach, M., and Cohen, M. 2015. Westermost Rough Fish & Shellfish Monitoring Report 2015 ; Including Comparison to Baseline Data 2013 A study conducted for DONG Energy.

Roach, M., Cohen, M., Forster, R., Revill, A. S., and Johnson, M. 2018. The effects of temporary exclusion of activity due to wind farm construction on a lobster (*Homarus gammarus*) fishery suggests a potential management approach. ICES Journal of Marine Science, 75: 1416–1426.

Scott, K., Harsanyi, P., and Lyndon, A. R. 2018. Understanding the effects of electromagnetic field emissions from Marine Renewable Energy Devices (MREDs) on the commercially important edible crab, Cancer pagurus (L.). Marine Pollution Bulletin, 131: 580–588.

Scott, K., Harsanyi, P., Easton, B. A. A., Piper, A. J. R., Rochas, C. M. V., and Lyndon, A. R. 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.