

Perceptions of fishers and developers on the co-location of offshore wind farms and decapod fisheries in the UK



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ABSTRACT

The predicted expansion of the global offshore wind sector is likely to increase conflicts as users of the coastal zone compete for space, and the displacement of fisheries is of particular concern. It is therefore important to explore opportunities that could support the co-existence of offshore wind farms (OWFs) and fishing activity. In addition to ecological evidence on the effects of OWFs on commercially exploited species, the co-location issue requires understanding of the perceptions of fishers and OWF developers on key constraints and opportunities. Interviews were carried out in 2013 with 67 fishers in South Wales and Eastern England and with 11 developers from major energy companies, to discover experiences and opinions on the co-location of OWFs with crab and lobster fisheries. Developers expressed broad support for co-location, perceiving potential benefits to their relationship with fishers and their wider reputation. Fishers had more mixed opinions, with geographical variation, and exhibited a range of risk perception. The lack of reported experience of potting within OWFs was not related to stock concerns but to uncertainty around safety, gear retrieval, insurance and liability. Clear protocols and communication to address these issues are essential if co-location is to be feasible. Scale may also limit the potential benefits to fishers, especially in that large offshore OWFs are likely to be inaccessible to much of the inshore fleet. There remains the potential to enhance the artificial reef effects of OWFs by deploying additional material between the turbines, but options to finance such schemes, and how investment by OWF developers could be offset against compensation paid to displaced fishers, require further investigation.

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1. Introduction

Globally, offshore marine renewable energy exploitation is increasing as a way of reducing carbon emissions and hence climate change impacts. In UK waters alone, over 1500 offshore wind turbines were operational or in construction at the end of 2014, with a further 2700 consented or formally submitted for planning approval [1]. Continued expansion of the sector is likely to bring offshore wind into conflict with other users of the coastal zone. The displacement of fishing activity by infrastructure developments is a particular concern that has been highlighted within the UK's Marine Policy Statement (MPS) [2], the document providing the framework for the development of Marine Plans for England's coastal and offshore waters. The MPS concludes (p43) that "wherever possible, decision makers should seek to encourage opportunities for co-existence between fishing and other activities." The increased demand for utilisation of marine space and

the need to promote sustainable co-existence of users in order to reduce conflicts and maximize economic opportunities is recognised internationally, within, for example, the EU Directive establishing a Framework for Maritime Spatial Planning (2014/89/EU) and the US Government's National Ocean Policy Implementation Plan [3].

The ecological basis for the potential co-location of offshore wind farms (OWFs) and fisheries results from the artificial reef effects generated because OWF infrastructure provides hard substrate habitat, usually in places where it previously did not exist. There is some evidence from ecological surveys that this new habitat already supports populations of commercially important crab species, and rock armour and concrete gravity base foundations could provide habitat for European lobster [4]. This provides encouraging support for the possibility of co-locating OWFs with crab and lobster fisheries. However, before recommendations can be made on the possibilities of co-location, it is important to ascertain whether it will be possible for fishers to take advantage of any increase in crab and lobster stocks, or whether practical constraints will prevent realisation of the opportunity. This research therefore used interviews to examine the opinions of OWF

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developers and fishers to find out what their experience has been, and their expectations are, of OWF impacts and co-location issues such as access and safety. This addresses a gap in the literature, as previous studies have been dominated by perceptions of the implications for mobile gear, and detailed assessments of practical constraints and opportunities for shellfishers are lacking.

2. Existing co-location of fishing and energy development

The exemplar of co-location between capture fisheries and energy infrastructure is off the coast of Louisiana. There are some 4000 oil and gas platforms in the Gulf of Mexico [5], which have become the focus of recreational fishing in particular, due to the absence of natural reefs in the area [6]. Fishers are prepared to travel over 100 km per trip to reach the platforms [7], and access the structures at a frequency of approximately six boats per month per platform [8]. The value of the platforms to recreational fishing was a key driver in the establishment of the “Rigs to Reefs” programme [6], and over 330 artificial reefs have now been created in Louisiana waters from decommissioned oil and gas platforms [9]. Commercial rod and line fishing has also been observed at oil and gas platforms, often at distances in excess of 100 km offshore, although at a frequency of only about 10% of that for recreational fishing [8].

There is less evidence of successful co-location between energy and fisheries in the temperate waters of the North East Atlantic. In some cases, such co-location is not possible: in the UK, vessels are prohibited from entering safety zones extending 500 m from any point of an offshore oil or gas structure under Section 23 of the Petroleum Act 1987 [10]. Trawlers have been observed to fish in close proximity to OWFs and Norwegian oil platforms, although it is not known whether this is a displacement effect as the boats are unable to fish within the footprint of the infrastructure, or the result of a change in the availability of target species [11,12].

In the absence of empirical evidence of actual fishing behaviour in relation to existing energy infrastructure, the focus of research has been on the concerns of fishing industry with regard to the potential impacts of OWFs (and other marine renewable energy) developments. These studies highlight fishers' concerns about loss of fishing grounds and displacement, safety and gear loss, and inadequate consultation and communication [13–18]. A minority of fishers do perceive the potential opportunities presented by artificial reef effects causing target species to aggregate at OWF foundations, and they are also aware of possible spillover effects of individuals from within a refuge created by the exclusion of fishing from the footprint of the infrastructure [14–16].

3. Method

Face-to-face semi-structured interviews were carried out with fishers and representatives of companies developing OWFs (hereafter “developers”) between May and December 2013. Fisher interviews took place in North Norfolk/South Lincolnshire (referred to as the “Norfolk” sample), East/North Yorkshire (the “Yorkshire” sample) and South Wales (Fig. 1). These sites were selected to obtain a range of opinions that would take account of the variation in the scale of OWF developments and the relative importance of crab and lobster fisheries for different regions of the UK. The central North Sea is a particular focus of OWF development with operational sites near the coasts of North Norfolk/South Lincolnshire and partially constructed, consented and proposed sites within this area and extending north into the coastal and offshore regions of Yorkshire. There are currently no OWFs in the Bristol Channel, although it does contain a leased area that, during

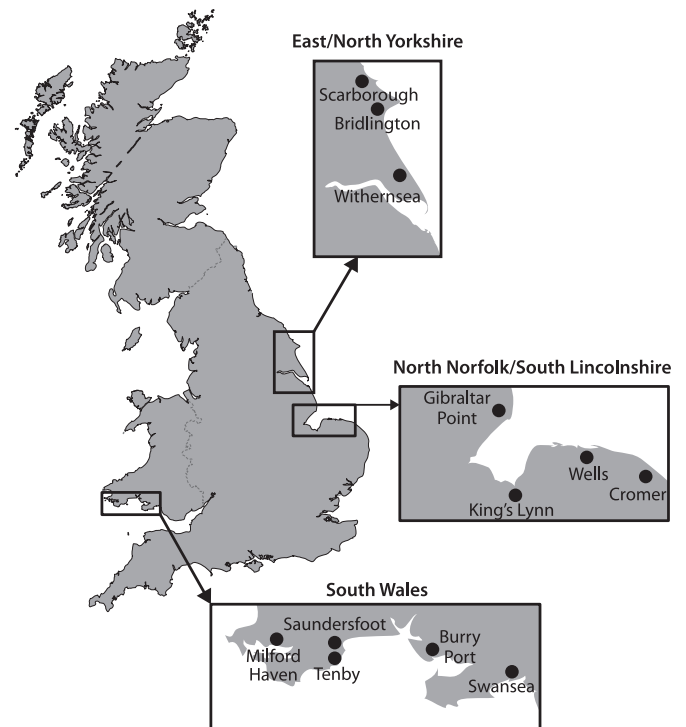


Fig. 1. The sites at which fishers were interviewed.

the data collection period, was proposed for the Atlantic Array. Crab and lobster fisheries are particularly important in North East England: accounting for over 30% of landings by weight into Scarborough and Grimsby in 2011 compared to 13% of landings into the Bristol Channel ports of Milford Haven, Saundersfoot and Ilfracombe [19]. The Norfolk fisheries are again different with shellfish accounting for over 90% of landings into Great Yarmouth and Lowestoft, but with molluscs dominating and decapod species accounting for only a very small proportion of the total [19; MMO unpublished data].

The questionnaire forming the basis for interviews with developers had four main sections: (i) the exclusion of fisheries either entirely or partially from OWFs; (ii) access and licensing of crab/lobster fisheries within OWFs; (iii) potential benefits and financing of strategies to enhance artificial reef effects; and (iv) experiences of fishing inside existing OWFs. The interviews with fishers included, similarly, questions on access, licensing and the financing of artificial reef enhancement schemes, as well as on actual and expected impacts of OWFs on fishing activities, and the perceived benefit or harm OWFs could do to crab/lobster fisheries. Crab/lobster fishers were asked about current practises, as a means of understanding existing operational and safety issues that may affect their ability to exploit any benefits from OWFs.

4. Results

4.1. Sample groups

Completed questionnaires were received from eleven offshore wind developers, at least two of which represented the collective views of multiple individuals. Interviews were carried out with 67 fishers, most of whom were full-time fishers in the under 10 m fleet with, on average, over 20 years' experience (Table 1). The crab/lobster fishery was a particularly important source of income for Yorkshire fishers, although Norfolk fishers had the greatest financial dependence on fishing in general.

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