

The attitudes of fishermen on the island of Ireland towards the development of marine renewable energy in their locality – preliminary survey results

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ABSTRACT

The expansion of marine renewable energy (MRE) will increase pressure on sea space and existing maritime users which represents a challenge for Maritime Spatial Planning (MSP). Commercial fishing has been identified by many as the industry most likely to be affected by the development of MRE. In order to reduce the risk of spatial conflict and to enable decision-making based on the co-existence of the two sectors, it is important to gain a better understanding of the attitudes of fishermen towards the development of MRE in their locality. A survey was designed to provide quantitative information on boat skipper/owner attitudes to the development of MRE projects near their home port. Three MRE developments proposed around the island of Ireland were chosen as case study sites in which to carry out the survey. The sites represent offshore wind, wave and tidal energy respectively and are in differing stages of development. In total, 104 complete surveys were conducted with fishermen located at ports in the vicinity of the case study sites. 40% of those surveyed agreed that it is important to develop MRE in their locality. A further 15% were neutral on this matter. The majority of respondents (70%) were of the opinion that fisheries and MRE projects can co-exist.

INTRODUCTION

Marine Renewable Energy (MRE), defined as offshore wind, wave and tidal energy has the potential to be a key contributor towards achieving EU renewable energy targets for a number of countries. It has been argued that in comparison to land based wind farms, particularly in the UK and Europe, offshore areas are less likely to be in conflict with other activities [1]. However the expansion of MRE will increase pressure on existing marine sectors representing a challenge for Maritime Spatial Planning (MSP) [2]. Commercial fishing has been identified by many as the industry most likely to be affected by the development of MRE [3]. Although the exact socio-economic impacts of MRE projects on fishermen are unknown there are likely to be benefits and costs to fishing communities.

Building acceptance of MRE technologies among fishermen requires an understanding of the current perceptions towards MRE and the attitudes that may exist towards this. Information on the

attitudes of Irish fishermen towards the development of MRE in their locality will assist in making decisions based on the co-existence of the two sectors and thus reduce the risk of conflict. As the wave and tidal energy sectors are not yet fully established, with limited numbers of device deployments and commercial scale developments, research studies on attitudes and perceptions of fishermen are few. Similarly there are very few studies concerning fishing communities and their attitudes towards the rapidly expanding offshore wind sector and the issue has not been fully addressed. This paper aims to address this research gap. Detailed information on the attitudes of fishermen towards the impacts of marine renewable energy development on them has the potential to help developers and policy makers avoid conflict and confrontation.

This paper builds on a study of the attitudes of fishermen on the west coast of Scotland to offshore renewable energy developments and the influencing factors on this [3]. That study found that the most important factor influencing fishermen’s opinions was whether they knew of a nearby offshore development. Taking this into consideration the aim of this study was to survey a representative sample of fishermen operating in areas where MRE developments have been proposed off the coast of the island of Ireland (comprising Republic of Ireland and Northern Ireland), on their attitudes towards these developments. Understanding the level of support or opposition that fishermen have towards MRE is essential for MSP when making decisions based on the co-existence of the two industries.

METHODOLOGY

A survey was designed to provide quantitative information on boat skipper/owner attitudes to MRE. Three MRE developments were chosen as case study sites in which to carry out the survey. The sites represent offshore wind, wave and tidal energy respectively and are in differing stages of development. The questionnaire was developed to build on other attitudinal studies of fishermen in the UK [4, 5] and in particular the study of Scottish fishermen’s attitudes [3]. The survey covered a number of key themes including fishing activity, attitudes, perceived impacts and opportunities and consultation on developments. The scope of this paper is limited to the responses from the section on

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fishers' awareness of proposed MRE developments occurring near to their home port and attitudes towards these developments. The case study sites are outlined below.

1. The Atlantic Marine Energy Test Site (AMETS). This site is being developed by the Sustainable Energy Authority of Ireland (SEAI) off Belmullet in Co. Mayo on the west coast of Ireland. The purpose of AMETS is to test and demonstrate the performance of pre-commercial wave energy devices in generating electricity and their survivability in extreme open ocean conditions. Inshore fishing activities within the project area consist mainly of brown crab and lobster by members of the local fishing groups, and limited trawling by members of the Killybegs Fishermen's Organisation (KFO).
2. Fair Head and Torr Head sites: Two separate 100MW tidal array projects are in the early stages of development off the north coast of Co. Antrim, Northern Ireland. The two sites are located off Fair Head and Torr Head respectively. A significant number of small fishing vessels, most of which are less than 10m in length operate from harbours within the vicinity of both projects.
3. First Flight Wind (FFW) site: This project consists of a consortium intending to develop a 600MW offshore wind farm off the south east coast of Co. Down, Northern Ireland. The area under consideration has been identified through a Strategic Environmental Assessment (SEA) as potentially suitable for offshore wind development, subject to project level mitigation. The majority of the licensed sea fishing activity of Northern Ireland is concentrated at three ports in Co. Down. The majority of fishing effort in the area is directed towards Nephrops or prawn fisheries; however, there are also a significant number of smaller vessels that fish for lobster and crab.

Table 1. Case study sites

	Type of dev	Target fish species	Gear used	Vessels
AMETS	Wave energy test site	Lobster, crab, mackerel	Static, mobile	73
Torr Head, Fair Head tidal dev	Commercial tidal farms	Lobster, crab	Static	28
FFW	Commercial offshore windfarm	Nephrops, lobster, crab	Mobile, static	212

In total 104 surveys were conducted with skippers/owners of vessels operating at ports in the vicinity of the case study sites. The number of vessels operating in waters around AMETS was supplied by the Irish sea fisheries board Bord Iascaigh Mhara (BIM). The vessel list for the ports in Northern Ireland was taken from a participatory mapping study [6] and is based on fleet information provided by the Department of Agriculture and Rural Development (DARD). Due to difficulty accessing fishermen a number of different survey methods were used. The majority of the surveys (70) were carried out face to face at the ports around the case study sites. In addition, 32 surveys were carried out over the telephone where face to face contact was not possible. A smaller number of surveys were returned via email (2).

RESULTS

Respondents were asked if they were aware of any existing or proposed marine renewable energy developments occurring near to their home port. The majority (93%) responded that they were aware of the projects. Respondents were then read the following statement on their attitude towards MRE developments in their locality and asked to indicate their level of agreement on a five point Likert scale ranging from strongly agree to strongly disagree – “I think that it is important to develop marine renewable energy sources, such as offshore wind, wave and tidal energy”. The attitudes were quite evenly split with 40% either strongly agreeing or agreeing with the statement compared with 45% who were in disagreement with it. 15% of the respondents were neutral on the statement. For the sake of clearer representation in figure 1, the response types were condensed to agree, neutral and disagree and analysed according to site location. The results show that there is a noticeable difference in attitudes at each site. The highest level of acceptance is at the AMETS site where 55% of those surveyed were in agreement that it is important to develop MRE, while only 29% of the sample at the FFW site was in agreement with the statement.

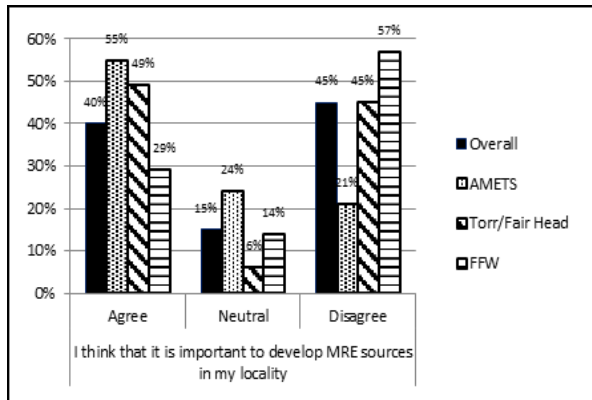


Figure 1. Attitudes of fishermen towards MRE

Respondents were also asked a closed question with yes/no responses on whether they thought it would be possible for the fishing and MRE industries to co-exist. The majority of respondents (70%) were of the opinion that this could happen. The responses to this question at each site follow a similar trend to those on the attitudes question in that AMETS had the highest level of respondents who felt that both sectors could co-exist (90%), whereas the FFW site had the lowest (58%) (figure 2).

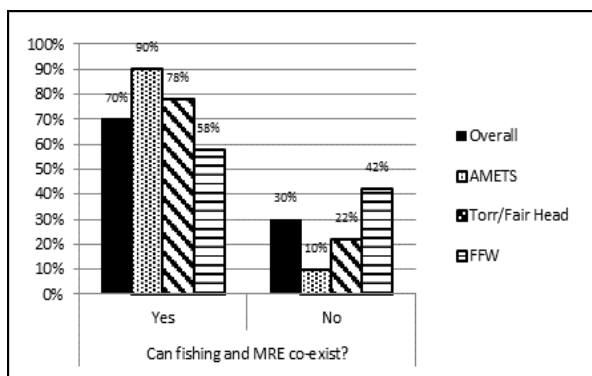


Figure 2. Co-existence of MRE and commercial fishing

DISCUSSION

The results show that although there are a considerable number of fishermen (40%) who agreed that it is important to develop MRE in their locality there is still a significant amount (45%) who are opposed to the developments. Results from the study in Scotland [3] show that the majority of fishermen (48%) expressed positive or neutral attitudes (33%) towards MRE developments, whilst a smaller number of fishermen (19%) held a negative attitude. Although Scottish fishermen appear to be broadly supportive of MRE, the study suggested that this was due to the majority of them being in the early stages of forming views. Analysis of the results from both the present Irish study and the Scottish study would seem to indicate that the attitude of fishermen towards MRE is following Wolsink's U-shaped curve. Wolsink [7] hypothesised that public acceptance of renewable energy projects follow a U-shaped curve. Attitudes range from very positive (that is when people are not aware of a renewable energy project in their

neighbourhood), to much more critical (when a project is announced), to positive again (some reasonable time after the construction). Initially support is relatively high however this begins to fall as more details emerge and negative impacts are discovered. 44% of the sample of Scottish fishermen had knowledge of a nearby MRE development whereas the majority (93%) of the Irish fishermen surveyed were aware of the developments being proposed near to their home port. The results support Wolsink's theory in that the Scottish fishermen, who were less aware of developments, were more favourable towards MRE than those surveyed on the island of Ireland. This suggests that the less supportive attitude of Irish fishermen towards MRE is correlated to the fact that they are more aware of proposed developments in their locality.

The U-shaped effect is also seen when comparing the attitudes towards the proposed development at each site. At the AMETS site 55% agreed that it was important to develop MRE sources in this area, for Torr Head Tidal 49% of those surveyed were in agreement, whereas for FFW the figure was only 29%. Offshore wind is the most mature of the three technologies and there are a number of operational farms in the UK for fishermen to base their opinions on. The results indicate that familiarity with existing projects may be a reason for differing opinions. The fishermen based in the ports near the FFW project would be aware of the existing West of Duddon Sands and Walney offshore wind farms as some fishermen from the ports in Co. Down would fish near these projects. There are currently very few existing wave or tidal projects for fishermen to base opinions on. This view is supported by a review study by Ladenburg and Krause [8] which concluded that familiarity with renewable energy technologies shapes attitudes and perceptions and that prior experience with wind turbines can influence the acceptance of offshore turbines.

When comparing the attitudes across sites it is important to note that the physical scale of the projects could be a major factor in the differences in attitudes. AMETS is intended to be a site to test the survivability and performance of WECs and the two test sites here cover an area of roughly 5km². The exact scale of the Torr Head and Fair Head tidal projects will depend on the power output of the tidal turbines used but as an indication the Agreement for Lease for Torr Head was awarded for an area of 6.8km². The exact spatial scale of the First Flight Wind project has not been finalised, but it is estimated that it will be in region of 120km².

The idea that the public are supportive of renewable energy but may have objections to renewable energy developments in their locality, or NIMBYism, is often given as a reason for public objection to marine renewable projects. The literature on acceptance of renewable energy developments in recent years has been increasingly dismissive of the NIMBY concept. It has been

accused of being an overly simplistic theory used to capture a wide range of attitudes and opinions [9]. An alternative theory on the public perceptions and attitudes towards renewable energy developments is that of “place attachment”. This can be described as a “positive emotional connection with familiar locations such as the home or neighbourhood” [10]. Stakeholder opposition and conflict can be viewed as a form of “place-protective action” and may arise when a renewable energy development is perceived as a threat to place related identity processes [11]. This is another possible reason why fishermen at the case study sites are not fully supportive of the proposed developments. Many of the ports near to the case study developments have been associated with fishing for centuries. In addition to this many of those surveyed would have strong links to the sea that span generations and they would view fishing as much more than a job but rather part of their cultural identity.

CONCLUSIONS

Understanding the attitudes of fishermen towards the perceived socio-economic impacts of MRE development will help developers and policy makers in the mitigation of these impacts. Results from the survey show that attitudes of Irish fishermen are less supportive than those of Scottish fishermen as found in a similar study. Addressing the concerns of fishermen towards MRE developments could potentially enhance their acceptance of them. The stakeholder consultation process provides a platform for the discussion of such concerns. Consultation should also provide an opportunity for fishermen to have influence over the decision making on projects which may affect them. Further work is needed to assess fisher’s perceptions of the consultation process and their level of involvement in decision making.

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