

Options and opportunities for marine fisheries mitigation associated with windfarms: summary report

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Introduction

This eight page report summarises the findings of a Collaborative Offshore Wind Research Into the Environment Ltd (COWRIE) funded project to investigate the options and opportunities for marine fisheries mitigation associated with windfarms. This summary is intended to help make the project findings available to everyone who has an interest in offshore windfarm developments and the commercial fishing industry. In addition, the full, 125 page final project report may be downloaded from the COWRIE website: www.offshorewindfarms.co.uk/Pages/COWRIE/.

The key issues for this project were that Government has committed to the UK generating 30% of its electricity from renewable sources by the year 2020 in order to reduce carbon emissions, combat climate change and secure the UK energy supply. A significant proportion of this renewable energy will come from windfarms sited off the UK coast. Commercial fishing activities may be affected by windfarms, in particular through causing a loss of access to fishing grounds.

In light of the potential for fishermen to lose access to sea areas within offshore windfarms, this project was proposed with the aim of developing a list of possible mitigation options which would be of use to fishermen, developers, regulatory and statutory bodies and marine resource managers in discussions related to fishing and current and future windfarm developments. In brief, the aim of the project could be summarised as "*Identifying ways to keep fishermen fishing*".

The list of possible mitigation options presented here was never intended to be definitive or exhaustive. Each of the proposed options will need to be considered and appraised in the context of individual offshore developments, and many of the options may be unsuitable because of specific local issues. Fishermen and developers, with the support of fisheries managers, fisheries scientists and statutory bodies, are therefore encouraged to use this report as an information source while identifying their preferred process for managing any impacts on commercial fishing.

Methods

A key concern for this project was to ensure that stakeholders, including fishermen, were involved from the beginning. An expert advisory group (EAG) was therefore established and was invited to input to the project, especially through commenting on project documents and by attending two project workshops to develop and refine the list of possible mitigation options. A questionnaire was also developed which was made available online and sent out to offshore industry representatives. The project was also advertised on the COWRIE website and through articles in Fishing News.

The project was conducted between June 2009 and April 2010. As well as organising stakeholder input, key steps to the project included developing a draft list of possible mitigation options in October 2009, and conducting a detailed strengths, weaknesses, opportunities and threats (SWOT) analysis on each of the options in January 2010. The EAG was invited to review the work at each stage.

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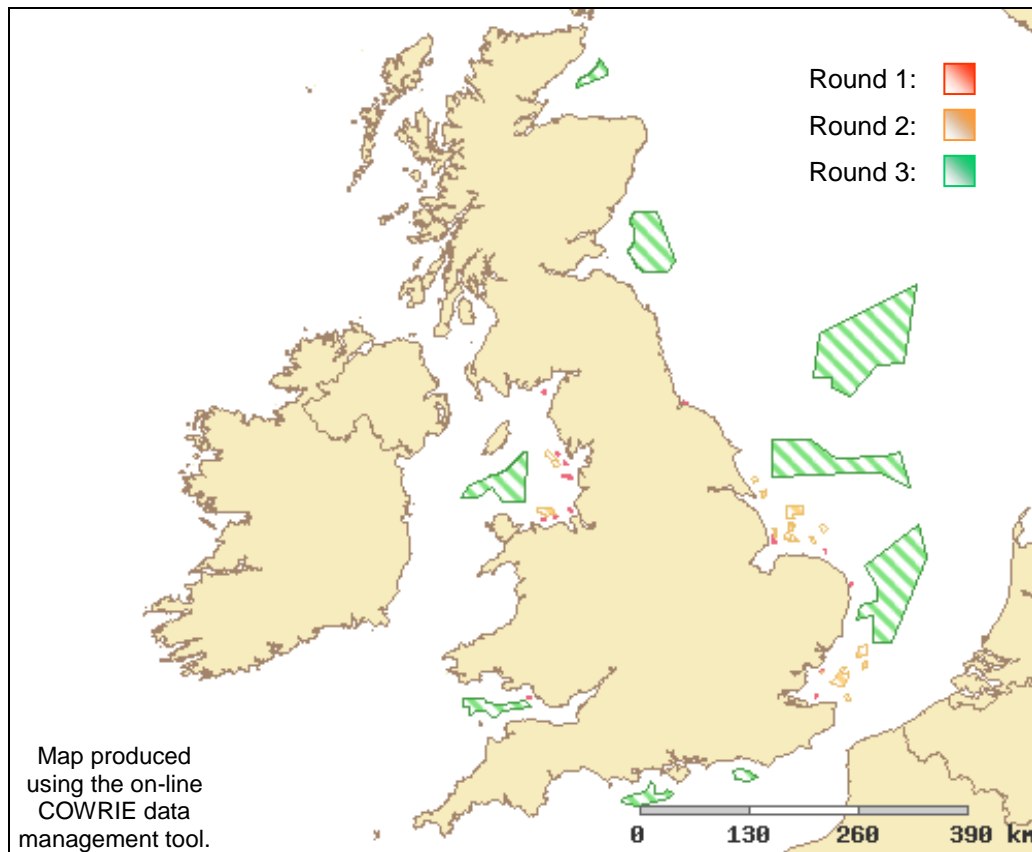


Figure 1: Round 1 and 2 windfarm lease locations, and Round 3 strategic areas.

Results

As a result of the research undertaken, and through the support of the EAG, 26 possible mitigation options were identified during the course of this study. These were grouped into four categories:

1) Options to minimize impacts on commercial fishing activities (5 options).

These options are focused on reducing or eliminating any negative impacts of windfarms on commercial fishing activities through early and constructive consultation.

2) Options to enhance stocks of targeted species and associated habitats (5 options).

These options are focused on promoting existing fishing activities within and around windfarms.

3) Options to support existing fishing activities (12 options).

These options are focused on increasing access to fisheries, enhancing performance, reducing costs, increasing product price or enhancing marketability.

4) Options to develop new fisheries or other activities (4 options).

If access is lost, these options are focused on opportunities to switch to new or alternative fisheries and other activities.

Results of the detailed SWOT analysis of each option are reported in the full final project report, and some of the key findings associated with each option are reported on the following pages. In addition, an overarching SWOT analysis was undertaken of mitigation as an approach to managing impacts on the commercial fishing industry. Key strengths included the well organised associations representing both fishermen and windfarm developers, and the strong entrepreneurial spirit within both industries. The Government support for building windfarms and for coastal communities should also provide a steer on the need for fishermen and developers to work together and with other interests in order to identify ways to keep fishermen fishing.

Options to minimize impacts on commercial fishing activities

1) Combining windfarms with Marine Conservation Zones (MCZs)

There is increasing pressure on space for different activities and industries at sea. The new MCZs proposed in the Marine and Coastal Access Act may limit or, in some cases, prevent fishing, so there may be potential to combine offshore windfarms with MCZ to minimize restrictions on fishing activities.

Key Issues

- The MCZ network design process is currently underway, so early proposals for areas from fishermen and developers may be welcomed.
- Some windfarm sites may not be suitable or desirable as MCZs

2) Selecting sites with minimal impact within a windfarm development zone

There may be some opportunity to select between sites for windfarm developments. Effective, early consultation and discussion could reveal opportunities to minimize impacts on the fishing industry through selecting areas for development that are of lower fishing importance.

Key Issues

- Site selection to minimize conflicts with fisheries and other interests is consistent with the Crown Estate's offshore windfarm Zone Appraisal and Planning (ZAP) process.
- Many factors other than fishing affect windfarm siting, including seabed type, water depth, conservation interests, shipping lanes, grid connection, visual impacts, military sites, etc.

3) Designing windfarms or micro-siting turbines to avoid particular fishing grounds

Careful windfarm design may provide benefits for the fishing industry in maintaining access to particular tows (for trawling) or drifts (for drift netting) where a small number of turbines could restrict access to favoured grounds, prevent vessels fishing along corridors between grounds, or where construction activities might reveal snags or hitches that would prevent fishing.

Key Issues

- Provides the potential for developers to take direct action to 'keep fishermen fishing'.
- Turbines are vulnerable to wake effects and turbulence causes vibration, so spacing can impact turbine reliability and maintenance costs.

4) Designing turbine bases or using scour protection to enhance fisheries

There may be opportunities to maximise any fisheries value of turbine bases, and any scour protection material through the use of specific base designs or through the use of greater quantities or specific designs of scour material.

Key Issues

- Species that may be attracted to or benefit from artificial reefs, such as crustaceans and fish including bass or cod, can be targeted by gears that are likely to be permitted within windfarms.
- Turbine bases are reportedly a particularly cost-sensitive issue for developers, and any changes would take time to test and then implement.

5) Planning cable routes to minimize potential impacts

Cables are likely to be buried wherever possible during construction, but the trenching process may expose rocks or other material that could cause the loss of trawl or drift net fishing grounds. Appropriate routing may help to minimize this risk at particular sites.

Key Issues

- Local consultation should allow the locations of main drift or trawl grounds to be identified.
- Different fishermen and fishing sectors will have different grounds, so satisfying all fishing interests may be difficult and potentially divisive.

Options to enhance stocks of targeted species and associated habitats

1) Stock enhancement from hatchery seed

Direct stock enhancement may be possible for species such as oysters, scallops and lobsters, where hatchery production is already established at commercial or near-commercial scales. Enhancement of shellfish species is relatively widely practised. Fish are also produced in hatcheries, but wild enhancement is not currently thought to be economically feasible.

Key Issues

- More stable/predictable production from enhanced fisheries may provide long-term job security.
- Many windfarms are in relatively exposed areas, and may be unsuitable, as stock may be subject to waves and tidal streams.

2) Stock enhancement from wild seed

Spat or juveniles of oysters and mussels are available from wild beds in some locations around the UK in large, commercially viable quantities. These may then be stocked into sites for on-growing. Scallop spat may also be collected and on-grown after settling on specially-designed mesh collectors.

Key Issues

- Wild spat collection and on-growing is widely employed in UK and Europe, mainly for mussels.
- Many windfarms are in relatively exposed areas, and may be unsuitable, as stock may be subject to waves and tidal streams.

3) Laying cultch for oysters

Settlement of juvenile oysters can be promoted by placing appropriate material (cultch) on the seabed (e.g. shells). This is a widely practised approach to enhancing oyster fisheries.

Key Issues

- Laying cultch is an established oyster fishery enhancement technique.
- Many windfarms are in relatively exposed areas, so stock may be subject to waves and tidal streams.

4) Catch and release of large, broodstock animals

If stocks are heavily exploited and post-capture survival of adults is high when animals are returned (e.g. lobsters and some skates), a programme to support the return of large-sized, mature animals may be viable. This may result in an increase in the average age and size of animals in local populations and, subsequently, the reliability of recruitment at the local level.

Key Issues

- For lobsters, builds on fishing industry calls for management concerns of over-fishing and proposals to introduce a maximum landing size.
- Mobile species could move out of the windfarm (or wider project) area and be harvested by other fishermen.

5) Research into species of fisheries or aquaculture interest

Native oysters have been afflicted by a variety of problems including TBT pollution and the *Bonamia* parasite, and hatchery cultivation has varying success. Lobster cultivation is developing to commercial scale. There is keen interest in increasing fisheries production of these species, so support for relevant research programmes may be appropriate.

Key Issues

- Results could have wide geographic application.
- Any benefits would be slow to filter to fishermen.

Options to support existing fishing activities

1) New fishing gear or equipment

In order to fish within windfarms, some fishing activities may need to be adapted in order to continue. For example, pot strings may need to be shortened, towed gear fishing activities, if permitted, may need to be carried out with smaller or more manageable gear. Such gear may be expensive to purchase in the first instance, but may open up windfarms to conventional fishing activities.

Key Issues

- Directly addresses issues of needing to adapt gear or methods for fishing inside windfarms.
- Some fishermen will not need or want new equipment or be capable of adapting.

2) Fisheries or vessel accreditation

Ever-increasing focus is being placed on the sustainability of fisheries by supermarkets and their customers. Gaining vessel certification (i.e., the Seafish Responsible Fishing Scheme) or fisheries certification (i.e., the Marine Stewardship Council) can provide assurance that fisheries are being managed appropriately and that sustainability is a key concern, to help maintain and develop markets.

Key Issues

- Commitments from some major UK and European supermarkets to only source fish from certified sustainable sources by 2012.
- RFS certification does not address stock sustainability and may have limited standing in the market.

3) Local or regional fisheries promotions

Together with the demand for sustainably-produced food, there is increasing focus on locally-produced food. There may be opportunities for fishing operations impacted by windfarm developments to increase their viability and profitability by selling products directly to customers, for example through establishing a presence at local markets or shows, or by online e-marketing.

Key Issues

- Could have benefits across a wide range of fisheries at the local or regional level.
- Markets and fish stalls may be more time-consuming than many fishermen are willing to accept.

4) Development of Several and Regulating Orders.

Several and Regulating Orders are fisheries management tools which remove the public right to fish. They increase the security of fishing opportunities, and can lead to increased sustainability of fishing operations for listed shellfish species.

Key Issues

- Orders greatly increase the security of tenure for fisheries and fishermen.
- Orders exclude some fishermen and can lead to division within fishing communities.

5) Develop a quota leasing programme

The availability of quota for inshore fishermen has been the subject of considerable debate in recent years, as the available quota has shrunk to the point that viability of the fishery is often threatened. The introduction of windfarms may result in increased travel times or reduced access to favoured grounds for fishermen. However, quota may be purchased or leased to help overcome this problem.

Key Issues

- Addresses a common complaint that there are fish to be caught but not enough quota to land them.
- This option would require the establishment of a management scheme, with a potentially high level of management input required.

6) Establish a fuel purchase subsidy programme

A significant percentage of the overall costs associated with fishing can be in the fuel used, and high fuel prices can significantly impact the profitability of fishing operations. Fishermen may have to travel further or fish in less favoured grounds as a result of windfarms being built, so the introduction of a fuel purchase support programme that stabilised prices may address these issues.

Key Issues

- Directly addresses a key concern that steaming times will be longer or fishing less.
- Fuel price is a highly emotive subject, and subsidised fuel may be very divisive within the fishing industry.

7) Establishing local biodiesel production facilities

There is potential for biodiesel produced from fish waste or from vegetable oil recovered from food production units to be used in marine engines. The installation of biodiesel production units at ports could lead to reduced use of conventional red diesel in the fishing industry. This option could help to support the development of a more viable and sustainable local fishing industry into the future.

Key Issues

- With a strong environmental focus this option may have particular appeal to the windfarm industry.
- Biodiesel use in fishing vessels is not yet established and accepted.

8) New vessel engines to replace old, inefficient units

The replacement of old vessel engines with new, more efficient and reliable models should allow fishermen to reduce costs and operate more safely. This can be of particular relevance to windfarms where fishermen may have to travel further to fish or must operate in close association with turbines.

Key Issues

- Should increase fuel efficiency and reduce carbon, sulphur and nitrogen oxide emissions, which may be of particular interest to windfarm developers associated with green technologies.
- May be unfair to fishermen who have carefully maintained their engines.

9) Support for maintenance or annual refit costs

Safety and efficiency during fishing activities are factors that may be improved through the completion of regular vessel maintenance. Support for the completion of thorough annual refits may allow fishermen to operate more safely and effectively within and around windfarm sites.

Key Issues

- Could improve safety and alleviate concerns when working around windfarms.
- May be unfair to fishermen who have carefully maintained their vessels over time.

10) Provision of vessel or personal safety equipment

Fishing is a hazardous occupation, and many fishermen have expressed concern about operating within windfarm sites due to the increased risk associated with fishing near to the turbines. Well maintained vessel and personal safety equipment may help to increase safety levels.

Key Issues

- Addresses some of the safety concerns about fishing within or around windfarms.
- Doesn't create fishing opportunities, or necessarily encourage fishermen to keep fishing.

11) Insurance for vessels to fish inside windfarms

Some fishermen have expressed concern that insurance costs would increase if they were to fish inside windfarms, and that this would constitute at least part of the reason not to fish inside any developments. If insurance premiums did increase, support for any additional insurance costs might be considered appropriate mitigation in order to allow fishermen to operate within wind farms.

Key Issues

- Neutralises one of the potential additional costs associated with fishing inside windfarms.
- Increases in insurance premiums may not be required by all insurers.

12) Improvement of port or beach-landing facilities

Well maintained port or beach-landing facilities are important for the efficient and safe operation of every fishing vessel. Port facilities may include derricks, fuel storage facilities, freezers, shelters or other equipment. Tractors or haulers are also required to launch and retrieve beach-launched boats.

Key Issues

- Improvements provide long-term benefits for fishermen.
- Improvements lead to indirect benefits rather than the maintenance of fishing activities.

Options to develop new fisheries or other activities.

1) Training for new fisheries opportunities or on maximising product quality

While fishing opportunities may exist or develop around windfarm sites, appropriate fisheries knowledge to take advantage of such opportunities may not be available locally. It may be possible to conduct training or field visits to promote knowledge exchange and the development of new fishing opportunities. Product quality training may help fishermen to make the most out of any opportunities.

Key Issues

- Where certain gears are excluded from windfarms, retraining may offer new fishing opportunities.
- There may be only limited opportunities so few fishermen could benefit.

2) Support for Appropriate Assessments or EMS fishery management plans

Fisheries undertaken within EMSs (i.e. SACs and SPAs) that have a 'likely significant effect' are required to pass through an appropriate assessment. This can be a complex process, particularly for new fisheries. Fishery management plans that define agreed management principles and criteria may help to expedite these processes and allow fisheries to occur more quickly.

Key Issues

- Management plans can help to increase certainty for fishermen and fisheries managers.
- Management plans may be time-consuming to develop, and are required to be precautionary in nature.

3) Develop long-line or lantern-net aquaculture

This option is specific to the development of bivalve or algae culturing techniques inside windfarms, and would require investment in specialised equipment and facilities for handling lines and other equipment. Technical competence is also likely to be a key requirement.

Key Issues

- More stable opportunities from aquaculture may provide long-term job security.
- Many windfarms may not be in suitable locations due to high exposure or strong tidal currents.

4) Adapt to take advantage of tourism, recreation or other roles.

Fishermen typically possess unrivalled knowledge of their local sea area, and this may provide opportunities to supplement income or change focus. Relevant opportunities may arise with windfarm developments, such as providing maintenance support services, surveying or sight-seeing. Other opportunities may include providing recreational or commercial diving support.

Key Issues

- Fishermen possess skills and attributes that make them suited to offshore jobs (seamanship, practicality, and an ability to work independently and out-of-hours).
- Converting commercial fishing vessels to other applications is typically costly.

Discussion

The UK Renewable Energy Strategy was published in July 2009. This document made it clear that renewable energy will be an integral part of the UK's strategy for reducing carbon emissions. A key commitment in the Strategy was that more than 30% of UK electricity will be generated from renewable sources by 2020, up from about 5.5% in 2009, with more than two-thirds of the increase to be achieved using wind power. The Crown Estate's Round 2 and Round 3 licensing proposals also provide evidence of the scale of the proposed changes offshore, and of the need for the fishing industry to work with developers to minimize and mitigate impacts on fishing activities wherever possible. There is a risk that if any impacts are not mitigated then the viability of fishing activities and associated onshore businesses will decline as the ground available for fishing decreases.

Early consultation between developers and fishermen appears to be one of the most important factors in identifying options and opportunities to minimize and mitigate impacts. If fishermen are consulted late in the planning phase there will inevitably be little opportunity to incorporate mitigating features. The new Zone Appraisal and Planning (ZAP) process appears likely to be important in this regard. This process will require developers to demonstrate to the Infrastructure Planning Commission (IPC) that fishermen were consulted early, and that the site selection process for any development was undertaken to reasonably minimize adverse effects on fish stocks and fishing activity. If a developer fails to satisfy the IPC, they risk not gaining consent to build the windfarm.

Fishermen must contribute effectively to discussions. An important issue is that data showing where fishermen work, and on the value of different areas to fisheries, are available only at the broad scale or in discrete areas. For fishermen with small vessels which are not monitored with VMS, nor required to submit logbooks, there is a particular need to supply data which can provide evidence of activity and potential economic loss resulting from a development. Fishermen are also often independent by nature, and so generating a widely supported agreement on approaches to mitigation may be very challenging. There are no easy ways to address either of these issues, but they highlight the need for broad and thorough consultation by developers, and for detailed and enthusiastic input to any consultations by fishermen, so that informed and effective choices regarding mitigation can be made.

Another key factor in any mitigation proposal will be obtaining funding. Government guidance has made it clear that developers will not be required to provide funding beyond the level to which fishermen have been affected, while windfarm developers will doubtless be keen to ensure that the costs of any mitigation projects remain proportionate. Therefore, in order to maximise the opportunities for significantly-sized projects to proceed, external funding should be sought to boost any funding that may be provided by developers. The European Fisheries Fund (EFF) and the Regional Development Agencies (RDAs) will provide the best opportunities for sourcing additional funding for projects linked to sustaining viable fisheries and fishing communities. Most of the possible mitigation options presented here are compatible with the remits of the EFF and the RDAs.

Compensation versus mitigation

Attendees of the second expert group workshop held for this project were concerned that a number of the possible mitigation options, in particular in the category of 'Options to support existing fishing activities', were closer to compensation than mitigation. For example, while the provision of gear that allowed fishermen to adapt to the new environment formed by windfarms is readily recognisable as mitigation, the provision of a fuel subsidy allowance may be considered to be compensation. It is important to note, though, that this report is intended to be used to help maintain the viability of fishing activities that support local communities. In this regard, an attempt has been made throughout this summary report and in the main report to make a clear distinction between compensation that is a simple monetary payout, and mitigation that is focused on increasing access, enhancing performance, reducing costs, increasing product prices or enhancing marketability. For this reason, mitigation options are included which, although not directly related to the impact of windfarms, may still help to support local fishing activities.