

RESEARCH PRIORITIES TO REDUCE ENVIRONMENTAL, SOCIAL AND ECONOMIC IMPACTS OF MARINE RENEWABLE ENERGY DEVELOPMENT AND STREAMLINE THE CONSENTING PROCESS: AN INDUSTRY PERSPECTIVE

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Introduction

•Evidence and knowledge gaps in relation to the environmental, economic and social effects of marine renewable energy developments present consenting and so investment risk to the renewable energy industry.

•The effective application of research, targeted at key evidence gaps ensures environmental as well as social and economic risks are minimised presenting a win – win of environmentally responsible development that protects existing resources while also streamlining consenting and investment processes as uncertainty is reduced.

•The aim of the study was to identify key evidence gaps that were encountered by industry to ensure research is keeping up with development and industry was utilising the most effective research to approach consenting issues.

•Two stage process undertaken

1 Nomination of priority research needs by industry

2 Communication of existing research and application of research methodologies from scientists

Section 1: Research topics	Priority level					Comments (please provide a brief comment on your responses if you wish).
	Low 1	2	Med 3	4	High 5	
1. Policy and planning						
2. Stakeholder engagement						
3. Effects of devices and arrays on marine habitats and species.						
4. Interaction with fishing and existing marine activities						
5. Social, cultural and economic impacts and opportunities						
6. Array scale and cumulative effects						
7. Please provide your own topic if it is not available:						

Fig 1. The first, topic selection section of the survey

Methods

•Specific key evidence gaps encountered by industry within the consenting process were identified in this study through a priority questions exercise undertaken at national and regional (south west UK) conferences and meetings.

•The first part of the survey requested interviewees to score key topics. This closed ended section asked respondents for their view of the priority level (between 1 and 5 with 5 the highest priority) of relevant research topics (Fig 1).

•The open ended section of the survey requested respondents to provide specific research questions and knowledge needs within the topics that they nominated as high priority or highest priority (4 or 5 on the 5 point scale) (Fig 2).

•Existing research and novel techniques that could be applied to priority research needs were reviewed and research needs discussed with science groups. A write up of the review and discussions in the final report is available through the NERC Marine Renewable Energy Knowledge Exchange Program.

Section 2: For each of the highest priority topics you have identified please provide:

Priority research questions or knowledge needs that need to be addressed to reduce environmental, social and economic risk from marine renewable energy (MRE) development to aid streamlining of the consenting process.

Fig 2. The second, research need / priority question nomination section of the survey

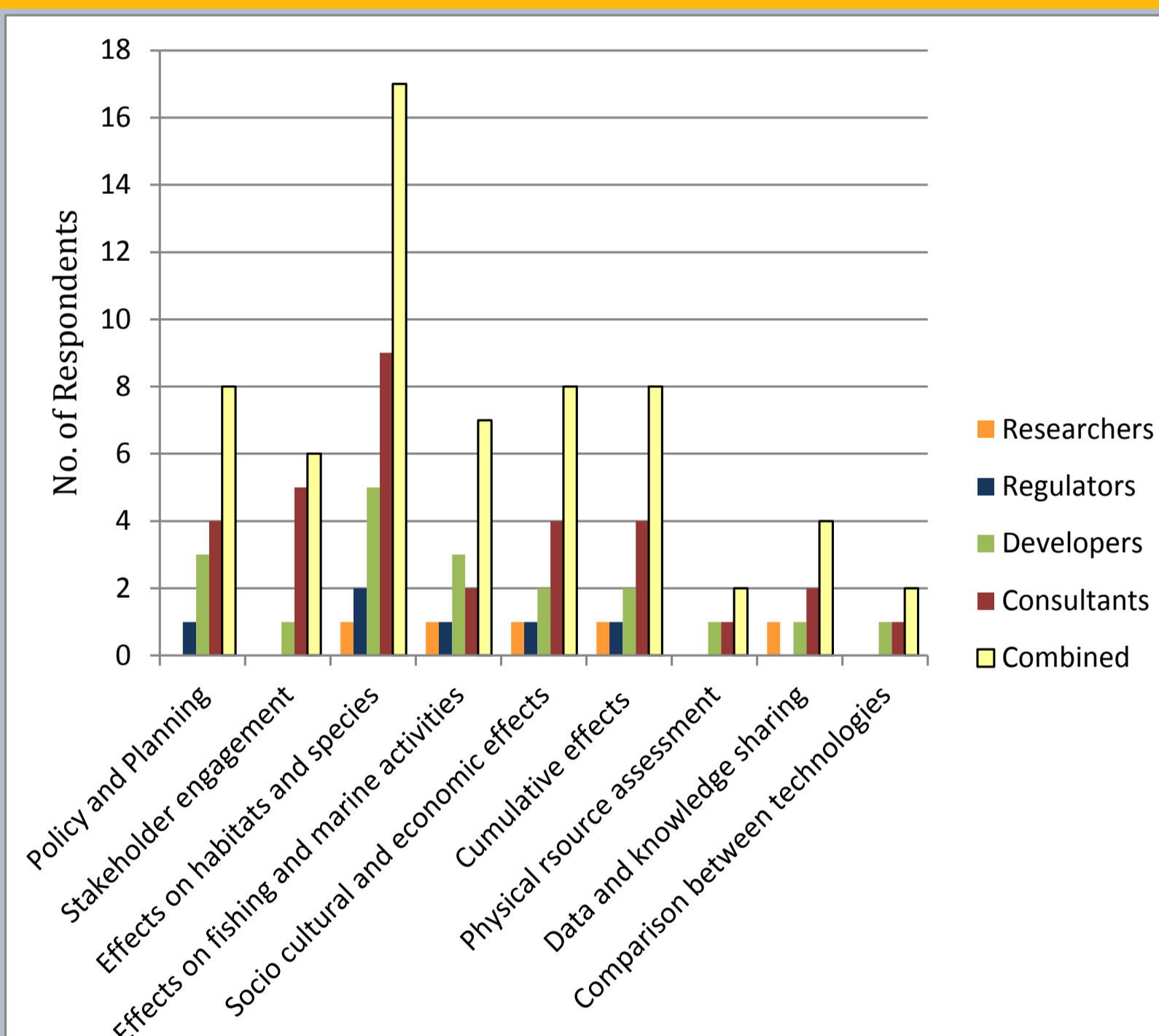


Fig 3. Number of respondents from each category identifying each of the priority research topics provided in the survey

Discussion and conclusions

Current research that could be applied to the priority questions identified existed in many areas but key evidence gaps were also highlighted. Discussions with researchers indicated physical environment data collected by renewable energy developers, especially at test sites would provide an invaluable rich resource to answer important questions.

Highest priority evidence gaps included:

- The need for development of a knowledge base and planning processes to allow identification of key scoping factors at a site.
- Development of best practice methods for socio economic assessments and stakeholder engagement.
- Research to provide evidence on the response and movement of marine mammals encountering tidal turbines.
- Development of effective means to share data from each demonstration array.

Establishing trusted routes to share valuable data and ensure research projects meet consenting needs was identifiable as key to reaching the desired win-win, of limiting environmental, social and economic impacts and reducing consenting risk.

Results

- A total of 21 individuals completed the survey through face to face or telephone interviews. These included 10 representatives of consultancies, 6 developers, 3 researchers within government bodies and 2 regulators.
- 63 questions were generated.
- Priority Topics identified were effects on habitats and species (83% of respondents) and then, Policy and planning, Effects on fisheries and other marine activities, Social, cultural and economic effects and Cumulative effects, all being raised by 38% of respondents (Fig 3).

The most commonly raised research needs / priority questions were:

- Identify which environmental scoping factors are important for a site and which can be removed. (39% of respondents)
- Quantify balance between environmental /economic impacts and environmental /economic benefits. (33% of respondents)
- How do marine mammals behave in relation to tidal turbines? (28% of respondents)

The full list of questions within topics is available in the hand out provided

Thanks are due to Natural Environment Research Council Marine Renewable Energy Internship Program for providing funding for the project. Thanks are also due to Johnny Gowdy at Regen SW, Dr Mel Austen at Plymouth Marine Laboratory and Dr Annie Linley at NERC for advice and support throughout the project.

