EIMR2014-969

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

Matthew Ashley[1]
Plymouth Marine Laboratory, Prospect Place, Plymouth, PL1 3DA and Plymouth University, Drake Circus, Plymouth, PL4 8AA

ABSTRACT

Ensuring novel research and existing best practice are applied to environmental and socio economic consenting issues for marine renewable energy developments provides a possible win-win. Consenting can be streamlined to increase investor's confidence in developments whilst environmental and socio-economic issues can be identified, assessed and mitigated at the earliest possible stage. To identify priority research topics that have been encountered by the marine renewable energy industry a questionnaire based survey was developed and conducted with industry, regulatory and relevant consultancy personnel. Of the priority research topics identified the existing research and planned projects that were relevant to those topics were summarised following review of existing research activity and discussions with researchers. Following the review of existing research key evidence gaps were identified at the time of the study. These included; 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, evidence on the response and movement patterns of marine mammals encountering tidal turbines and development of effective means to share data from each demonstration array.

INTRODUCTION

Consenting procedures exist to ensure environmental, social and economic impacts of developments are acceptable. However, for a new industry developing in a hostile environment risk of consenting failure also raises risk to investors and subsequent impacts on industry development. The application of the best established environmental and social and economic research knowledge and methods as well as novel, developing research provides a potential win-win. Delivery and sharing of the best possible evidence on environmental and socio economic effects can limit environmental and socio-economic impacts and maximise positive effects. At the same time the application of novel research can ensure consenting risks are identified early in the project development process and mitigated for, decreasing risk for industry and investors. 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.

Current research projects relevant to the research questions and research needs identified were reviewed. Discussions with researchers on the methods and tools that could be applied to the research needs were also undertaken.

METHODOLOGY

The priority questions approach developed by Sutherland et al [1, 2] was adapted within a simple questionnaire with an initial closed question section followed by an open ended question section. The questionnaire was conducted as a semi structured interview at national and regional (SW England) renewable energy events. Telephone interviews were also conducted and the questionnaire was made available online. 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. These initial research topics were drawn from existing reviews of evidence and research needs conducted by ORELG, NERC and the Environmental Scoping for the Atlantic Array, the largest renewable energy project in the South West Marine Energy Park at the time of the survey. The list of topics included: *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. Respondent's*

[1] Corresponding author: matthew.ashley@plymouth.ac.uk

own topics if not covered by those available. 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)

OBSERVATIONS

The *effects of devices and arrays on habitats and species* was the topic most often raised, the topic categories of *policy and planning, effects on fishing and other marine activities, social, cultural and economic effects* and the topic of *cumulative effects* also received high numbers of nominations as high priority topics (Fig 1)**.**

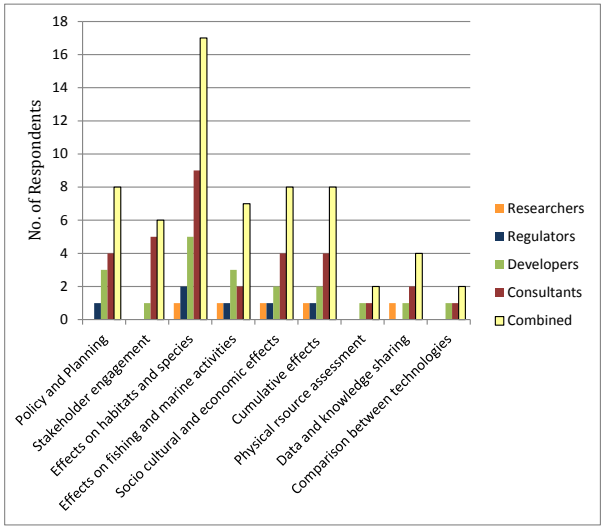

Figure 1 Number of respondents from each category identifying each of the priority research topics provided in the survey

Current research that could be applied to the priority questions identified existed in many areas but key evidence gaps were also highlighted. Highest priority evidence gaps included 1. The need for development of a knowledge base and planning processes to allow identification of key scoping factors at a site, 2. Development of best practice methods for socio economic assessments and stakeholder engagement, 3. Research to provide evidence on the response and movement of marine mammals encountering tidal turbines and, 4. Development of effective means to share data from each demonstration array.

CONCLUSIONS

The project identified that research groups held expertise and tools to approach many of the priority questions and research needs presented by industry. It was also raised that industry held significant physical and environmental data resources to support research. Establishing trusted routes to share valuable data and ensure research projects meet consenting needs was identifiable as a central route to reaching the desired win-win, of limiting environmental, social and economic impacts and reducing consenting risk.

ACKNOWLEDGEMENTS

The author would like to thank 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. Likewise a great thanks to the persons who responded to the survey and provided input on relevant research. The project was funded by a NERC Marine Renewable Energy Knowledge Exchange Internship.