

Talk (presenter underlined)

Development of a spatio-temporal risk assessment methodology applicable to the marine environment.

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Abstract

Risk and uncertainty in environmental policy, regulation and consenting is a priority area for the marine renewable energy (MRE) sector and significant in decision making. The research presents a spatio-temporal analysis based method for assessing environmental risks within the marine environment for target species distribution in relation to local environmental change, such as that associated with marine renewable energy developments. The method focusses on data commonly used by decision-makers, but importantly includes consideration of the uncertainties associated with understanding the changes to a given environmental effector and species distribution.

To set the scene an overview of the current state of risk within the MRE sector will be presented which identifies the methods used and highlights the knowledge limitations and gaps in understanding and applying risk assessment often encountered by practitioners regarding risk and uncertainty. An integrated and adaptive environmental risk assessment framework is put forward to improve understanding of risk and uncertainty across the UK MRE sector. To provide some of the necessary data to input into such a framework the proposed spatio-temporal risk assessment method for MRE development was developed which evolved from a project that applied climate change scenarios to the distribution of priority species. Within the climate change project a two-dimensional geospatial model was developed for species that are functionally important for demersal/benthic ecosystems and have fisheries importance. The approach started through the climate change study and further developed for MRE represents a step towards a cumulative risk assessment methodology, which includes level of certainty.

We envisage that future research will take forward this work to further incorporate different levels and type of impact and the associated change to the environmental risks. These issues also affect wider risk assessment and decision-making processes in the marine environment and as such the outputs may be applicable to a wider marine planning process.