

Research and analysis: Continued development of standardised methods for describing environmental pressures and sensitivities

Requirement R104

Requirement detail

Human use of the marine environment exerts a range of pressures on marine species. Depending on the pressure type, pressure intensity, and sensitivity of the species to that pressure, significant negative impacts may occur.

To ensure robust, transparent and integrated decision making, the MMO seeks to identify and agree standardised methods applicable across scales that describe and define; the types of pressures generated by marine activities, pressure intensity and distribution in space and time, sensitivity of habitats and species to pressures in space and time and ranges and thresholds at which pressures impact species ultimately to support decision making.

Research and analysis: Novel technologies to reduce risks to marine protected areas

Requirement R109

Requirement detail

Management measures for marine protected areas preclude certain activities because of the environmental risk resulting from the likely impacts of those activities. Novel solutions that can reduce the impact of activities on marine features, may potentially enable those activities to occur.

This work looks to identify current issues preventing access to marine protected areas for marine fishing and recreation activities to support development of novel technologies to address issues and inform adjustments to management measures.

This work would not require MMO itself to develop/test new technologies.

Research and analysis: Temporal variability of priority marine species and habitats

Requirement R110

Requirement detail

Species and habitats often have variable distribution and condition in space and time. Some are particularly dynamic such as those in transitional and intertidal waters that span the land and sea. Variability occurs over many different times scales from seasons to multi-year cycles and decades.

Temporal changes however, remain a challenge for management, particularly separating the different sources of natural variation including seasonal change or multi-year cycles like the North Atlantic Oscillation from human influences on natural variation including climate change impacts, or direct human induced variability. Similar challenges exist in defining the bounds of variability and accounting for the associated uncertainty in decision making.

This requirement is for mechanisms to describe temporal variability, differentiate sources and apply these to priority species/habitats. It will also examine how best to incorporate such temporal variability within marine management approaches.

Research and analysis: Co-location displacement in the marine area, the likelihood and impact on marine activities

Requirement R016

Requirement detail

Marine plans form a plan-led system for marine activities. Marine plans will ensure that different and competing activities are managed in such a way that

they contribute to the achievement of sustainable development. A key issue in all marine plan areas is the optimisation of space through promoting compatibility and encouraging co-existence between different activities. As such co-existence or displacement of activities should be considered within marine licensing.

An evaluation approach providing integrated consideration of the environmental, social and economic impacts of co-location/displacement has been proposed in research project [MMO 1049](#) but further research and development is required to put this approach into working practice.

Plan level evaluation of the impacts and risks for multiple use areas is required to inform plan development. Using an improved approach when identifying the issues stemming from co-location and displacement of activities at a plan area scale would allow better consideration of such issues at the project level through marine licensing.

A process has been scoped out but would need further development and incorporation into licensing processes to enable balanced consideration of co-location/displacement impacts. This project should build on the outputs of [MMO 1049](#), which outlines a proposed framework of comparing co-existence versus no-coexistence and makes recommendations for next steps in terms of this piece of work.

[Research and analysis: Impact of external pressures on fisheries in Western Waters \(area 7\)](#)

Requirement R046

Requirement detail

Current fisheries fleet forecasting models used in marine management are unable to account for some pressures which may affect activity within the fishery (such as quotas in other areas, stock price change, availability and diversification). Exploration of the impact of these pressures on fisheries activities would allow identification of high risk pressures which could, in turn, be used to improve forecasting model outputs. This requirement is specific to 'Area VII' for forecasting the behaviour of the scallop and crab fisheries. In particular it is considered important to explore how stock availability in other regional fisheries, local to Area VII, affects fishing effort.

At this time, models make predictions based on historic data within the area.

These models are currently unable to incorporate other potential behavioural drivers. Evidence is required on what other pressures may be driving fisheries behaviour within Area VII, and whether there are datasets with suitable coverage in time and space that can be utilised to further improve model predictions.

The aim is for a range of predictor variables to be identified through this project, with those demonstrating significant improvement in forecasting being included into an improved model.