



Aim

The aim of the project was to develop a consistent approach to the identification and consideration of cumulative effects that can be applied at the strategic level across all relevant Marine Management Organisation (MMO) functions. The approach should be applicable across all marine plan areas and all relevant marine sectors.

Introduction and methodology

A number of legislative drivers require cumulative effects (or in-combination) assessment within marine licensing and marine conservation management; for example the Environmental Impact Assessment Directive and Habitat and Birds Directives. Furthermore under the Marine Policy Statement, MMO is expected to ensure potential cumulative effects (CE) are taken into account in decision making within marine planning.

The majority of recent and on-going work in CE focuses on environmental issues relating to specific activities and at a scale local to those activities. However, consideration of CE in marine management can require assessment and mitigation of effects across all marine sectors and at a wide range of scales from individual projects to the broader plan area. In addition, sustainable development of the marine area requires integrated consideration of social, environmental and economic effects.

Currently, many of the legislative drivers for CE assessment have a strong focus on the consideration of environmental cumulative effects. Therefore, for this project, environmental factors have taken priority, with social and economic considerations of cumulative effects explored to a lesser extent.

This project sought to develop a framework to facilitate a consistent approach to CE across MMO functions, i.e. across a range of scales and activities. It aimed to provide a high level mechanism by which potential issues could be

highlighted. Outputs aim to provide focus for any subsequent more in-depth assessment.

A series of options were developed and reviewed with MMO and wider stakeholders through a number of consultation opportunities to inform framework development. A CE evidence database was built and populated to underpin the framework based upon information sourced through a literature review.

Results

The project produced a high level CE scoping framework underpinned by an evidence database containing information on broad categories of marine activities, pressures and environmental receptors. The database provides summary tables which support the proposed framework approach to initial scoping in of potential CE.

The proposed framework includes a series of iterative steps with a number of integrated feedback loops. Framework steps include:

1. Define the purpose of the CE assessment
2. Identify primary focus (receptor or activity)
3. Identify receptor-pressures
4. Identify activity-pressures
5. Define the study area
6. Define sources and pathways
7. Identify other activities
8. Assessment phase

Steps 3 and 4 are interchangeable depending on the output of step 2. The report guides the user through the most appropriate routes to begin to identify potential CE for more detailed consideration during the assessment phase. It also identifies the most appropriate points within this process at which to consider management of CE and mitigation. The order of steps taken and consideration of management is defined by the overall aim of the CE assessment and the level of evidence available to support the assessment.



Full details on each step are provided within the report and case studies are used to demonstrate application of the framework.

The toolkit of management approaches provides guidance on potentially appropriate approaches for different situations. These range from using past precedents and stakeholder consultation to help in consideration of implications of management decisions, to considering current and future projects and using available evidence and an evaluation of likely apportionment of CE between activities to help inform management decisions.

Conclusions and recommendations

The project has provided a potential high level approach to consideration of CE in marine management. The focus was on environment effects; however a mechanism by which socio-economic impacts might be incorporated was also outlined.

The report recommends that MMO reviews and considers implementation of the framework to support work of MMO functions. Additional evidence is, however, required to inform the framework. Recommendations in the report for future work included:

- Review and update the framework and database on a regular basis to ensure it is up to date and appropriate for MMO needs.
- Review activity-pressure links against additional evidence to provide a level of confidence in the link.
- Refine receptor categories and review links to pressures as more evidence becomes available.
- Expand the evidence database to incorporate information on the likely spatio-temporal scale of activity-pressure and pressures-receptor.
- Maintain an awareness of on-going and future work outside MMO which can address

gaps in environmental evidence highlighted within the report.

- Obtain additional evidence to improve understanding of the social and economic impacts in CE.
- Incorporate indirect effects and interactions between effects into the database/framework.
- Carry out further testing of the use of the different approaches to considering management of cumulative effects and mitigation in consultation with stakeholders as appropriate. Collation and evaluation of case studies where these approaches have been used previously would also help to strengthen the methodologies and develop best practice.

MMO comments

MMO is grateful to those that have contributed to the project via the consultations.

The project provides a high level approach to initial scoping of potential CE and consideration of management approaches that can potentially be applied across different MMO functions. This framework is underpinned by an evidence database containing information on likely pressures linked to broad receptor and marine activity groups. Outputs of the framework would require further more in-depth assessment to confirm significance of potential effects before use in management decisions.

This work and a parallel project ([MMO1060](#)) have, however, highlighted significant evidence gaps both in certain areas of environmental CE but also in socio-economic impacts and interactions. Further work is, therefore, necessary before the framework can be applied fully at a practical level.

Further information

Please direct any correspondence to the Evidence Team by emailing evidence@marinemanagement.org.uk