

The Natural Capital Approach: can it help decision making for the marine environment?

Marine Theme Objective: Valuing the Marine Environment

What's the problem?

The natural capital approach seeks to improve our understanding of the value of nature and to use this in tackling the problem of how to protect and restore our natural environment. "Natural capital" encompasses nature's 'assets' such as water, sediment, beaches, reefs and other components of the ecosystems around us. "Ecosystem services" flow from natural capital to provide us with many things that support our economy, health and wellbeing. Methods to apply the natural capital approach have been developed mostly for land and freshwater systems. The marine environment brings particular challenges, not least in terms of the availability of data, the wide ranging movement of important stocks such as fish, and the open access nature of most marine resources. We now need to focus in detail on how we can best use the natural capital approach in practice for marine policy and management.

What are the aims of the project?

The overarching aim of the project is to improve understanding of how the natural capital approach can be applied to the marine environment and how this links to UK national policy, particularly in terms of assessing trade-offs and ensuring value for money in monitoring, protecting and rebuilding our marine assets.

Initially, the project will consider whether existing frameworks, methods and data are fit for purpose, and, if not, will recommend how these can be improved. In particular, the work aims to discover whether a natural capital approach can be a robust aid for decision makers seeking to assess value for money associated with marine policy changes. A further aim is to consider whether the approach can be used to assess important trade-offs, and to review the usefulness of decision-making tools based on natural capital approaches. The work will identify the evidence available to support practical application of a natural capital approach for the marine environment. An international expert workshop will be organised, at which policy relevant questions will be developed to identify priorities and suggest best options to test the approach, suggesting how data gaps can be addressed.

Following the workshop, a new study to generate data on the value of a particular marine ecosystem service will be undertaken, with the aim of filling one of these priority evidence gaps.



Figure 1: Examples of the useful ecosystem services provided by the marine environment (Source: Plymouth Marine Laboratory).

Which policy areas will the research inform?

The research has particular relevance to the 25 Year Environment Plan. This advocates the natural capital approach as a means of improving decision making, particularly for the long-term, by making the value of the environment more explicit. The research also supports the commitment within the 2011 Natural Environment White Paper to include natural capital within the UK's national accounts, and so make natural capital central to how economic progress is measured. The research is likely to inform development and evaluation of Marine and Coastal Access Act areas such as marine planning and licencing

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What are the results from the project and how will they be used?

The project will begin to generate results in late June 2018.

Our report will include an assessment of what the natural capital approach involves, what it aims to achieve and its relevance to the management of the marine environment. We will explore the relevance and application of the natural capital approach at different temporal and spatial scales that are relevant e.g. for national level policy, for marine plan areas, for local authorities, for decisions on single site issues such as a marine protected area or licencing decision.

In addition to general summaries of the strengths and weaknesses of natural capital and ecosystem service frameworks and tools, we will provide case studies with examples of particularly significant or compelling lessons relevant to marine natural capital in the UK.

We will examine whether the habitat classifications used in natural capital approaches are fit for purpose, and assess the current status of indicators for marine ecosystem services. We will review the data linking marine species and habitats to the ecosystem services they provide, considering the uncertainty around the characteristics and strength of these linkages, and exploring how habitat condition affects the delivery of ecosystem services.

We will compile a database of values for marine ecosystem components, which will include details of the context in which the value was obtained, the method used, any limitations or quality issues, and any evidence of how the value generated has been used to support marine policy or management. From this database, we will highlight the key marine assets, goods, services and contexts for which values have not yet been documented or need to be strengthened. UK and international experts in marine natural capital and ecosystem services will be invited to a workshop to discuss their opinions on the outcomes of our review. They will also help us to identify policy-relevant questions that could be addressed using the natural capital approach, and to prioritise the most pressing evidence gaps that should be filled. Following the advice of these experts, we will undertake a new piece of research to value one of the marine ecosystem services that has a clear policy relevance and has been identified as a priority data

gap. Overall, the results will be used to help define a decision making process that takes better account of the value of the marine environment, particularly in terms of assessing the winners and losers from, and ultimately the cost effectiveness of, marine policies and management actions. The results will eventually inform the development of environmental accounts, which can monitor change in the status and value of natural capital and ecosystem services. The project steering group includes representatives from the Marine Management Organisation, Natural England, and the Joint Nature Conservation Committee, as well as Defra. Their participation will ensure that the research outcomes are relevant across different policy and management contexts for the UK marine environment.



Figure 2: Durdle Door: a valuable, iconic seascape (source: Will Broomfield)

Where can I find further information about this and related research?

Plymouth Marine Laboratory is leading the consortium carrying out this research (which includes the Universities of Plymouth and St Andrews). Further information can be obtained from Tara Hooper: tarh@pml.ac.uk Alternatively, please contact Defra Marine and Fisheries Evidence (science group: marine&fisheriesscience@defra.gsi.gov.uk)

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