



Diverse Marine Values

Integrating Diverse Values into Marine Management

POLICY BRIEF:

Using a Natural Capital Lens to Identify Evidence Gaps in Marine Decision-Making



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Introduction

Introduction: There is a growing trend in the United Kingdom (UK) to apply the natural capital approach in marine environmental management, which seeks to assess the benefits people derive from nature to inform decisions.

For example, DEFRA's 25-Year Environment Plan and its Marine Pioneer programme utilise the natural capital approach. However, the evidence base currently used to support these decisions is partial and uneven. Scientific and economic evidence related to provisioning services (e.g. fishing, aquaculture) and direct-use cultural services (e.g. recreation and tourism) dominate.

In contrast, vital ecosystem services such as water quality regulation, carbon sequestration, and spiritual or symbolic relationships with marine environments are frequently underrepresented or absent. Local and community-based knowledge, primarily when not gathered through formal empirical research, is often excluded altogether.

These evidence gaps matter because they limit the ability of marine decision-making to meet the goals of inclusivity, equity, and sustainability.

Decisions that rely only on dominant, technocratic evidence may reproduce existing power imbalances and fail to reflect the full diversity of human–marine relationships. Addressing these gaps by integrating more diverse evidence sources – including lived experience, social and cultural knowledge, and values that resist economic quantification – is one necessary step toward more just and sustainable marine governance.

However, filling evidence gaps alone is not sufficient. A deeper issue lies in how the natural capital approach is currently applied: it can reinforce policy incoherence by embedding economic growth and capital-based objectives at the heart of environmental decision-making. By framing environmental decisions primarily regarding economic value, the approach may inadvertently prioritise growth and capital-based objectives over environmental integrity and social justice. This creates tension with the overarching goals of sustainable marine management, as outlined in the UK Marine Policy Statement.

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Methodology

This policy brief presents recommendations to improve the use of evidence in UK marine decision-making and argues for a more critical and pluralistic application of natural capital thinking. These recommendations contribute to a broader conversation about reorienting marine policy toward integrated, coherent objectives that put nature and people at the centre of decision-making. This policy brief focuses on evidence use and decision-making at the UK level. It does not attempt to assess the distinct priorities or processes of the devolved administrations in detail.

Methodology

This policy brief reports the results of a study identifying natural capital evidence gaps in UK marine decision-making, which was part of the UKRI Sustainable Management for Marine Resources (SMMR)-funded Diverse Marine Values project¹.

The study reviewed the evidence used in six case studies from England, Scotland, and Wales to determine which components of marine natural capital were considered and how they were evidenced in the decision-making processes.

These case studies, selected to represent diverse geographies and governance systems, each focused on themes relevant to their local contexts, including coastal defence, water quality, and rural growth. They included, for example, assessment of Scotland's Sectoral Marine Plan for Offshore Wind Energy (2020), the Southsea Coastal Defence Scheme in Portsmouth, England (2021), and the Welsh National Marine Plan (2019), among others.

The study used NVivo qualitative analysis software to systematically review and code the publicly available documents relevant to each marine decision, identifying the types of evidence used and how components of natural capital and ecosystem services were represented. The original study is available open access².

1. SMMR Integrating Diverse Values webpage, <https://www.smmr.org.uk/funded-projects/integrating-diverse-values-into-marine-management/>
2. Fairbrass, A. J., K. Fradera, R. Shucksmith, L. Greenhill, T. Acott, and P. Ekins. Revealing gaps in marine evidence with a natural capital lens. *Philosophical Transactions of the Royal Society B: Biological Sciences* 380, 20230214 (2025)

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Findings

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Dominant Ecosystem Benefits: Certain goods and ecosystem services³ that benefit humans are frequently cited in the reviewed case studies, including:

- Fishing and aquaculture, such as fishing income and employment figures, reflect the direct economic and social benefits of aquatic resources.
- The economic and human costs associated with coastal erosion and flooding illustrate the critical role of marine ecosystems in protecting coastal areas and communities.
- The economic and human benefits of proximity to, and participation in activities involving, the marine and coastal environment.

Under-Represented Ecosystem Benefits:

However, several other essential ecosystem services are under-represented in the current evidence, such as:

- Marine habitats' water quality regulation service absorbs wastewater discharge and acts as a sink for pollutants.
- Use of wild aquatic plants for food and energy, such as the harvesting of seaweed for human consumption.

- Spiritual and symbolic connections with the marine and coastal environment include the spiritual enrichment, cognitive development, and reflection provided by coastal connections.

Evidence Hierarchies in UK Marine

Decision-Making: Our case study analysis shows that two types of evidence predominantly inform UK marine decision-making: economic and environmental evidence from the natural sciences. Economic data—such as market valuations, cost-benefit analyses, and sectoral employment figures—are frequently used to demonstrate the monetary value of marine activities and justify development. Alongside this, natural science-based environmental evidence plays a central role, especially where it is legally mandated through environmental assessments and monitoring. The most frequently cited environmental evidence types include:

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- **Data and statistics** from ecological surveys are used to assess the status and condition of marine habitats and wildlife.
- **Maps** illustrating the spatial distribution of habitats, recreation areas, and areas of coastal erosion risk.
- **Formal consultations** include participatory mapping exercises highlighting local marine and coastal values.
- **Literature reviews**, both academic and bespoke, covering topics such as fisheries management, marine pollution, and climate change impacts.

While some of this evidence is generated through emerging methodologies—such as arts-based, participatory, or interdisciplinary approaches—it is often interpreted within frameworks prioritising biophysical and economic metrics..

As a result, many social and cultural dimensions of marine ecosystems, especially those not easily quantified, remain underrepresented

Expanding the diversity of evidence types is essential for more inclusive, balanced, and effective marine decision-making. Relying on a narrow evidence base risks overlooking critical aspects of ecosystem condition, social impact, and long-term sustainability. Greater inclusion of social science, community knowledge, and integrative approaches—alongside economic and environmental data—can help capture non-material, relational, and place-based values currently marginalised.

3. Barbier, E. B. 2017. 'Marine Ecosystem Services'. *Current Biology* 27 (11): R507–10. <https://doi.org/10.1016/j.cub.2017.03.020>

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Recommendations

Recommendations for improved marine decision-making:

1. **Incorporate Diverse Evidence Sources:**
Broaden the types of evidence considered in decision-making to include local knowledge, social sciences, and interdisciplinary approaches, subject to materiality considerations. This can address gaps in natural capital evidence and provide a more holistic view.
2. **Enhance Monitoring and Data Collection:**
Develop and implement robust monitoring programs to fill data gaps in under-represented ecosystem benefits. Build on initiatives like DEFRA's Marine Natural Capital and Ecosystem Assessment (mNCEA) program.
3. **Promote Interdisciplinary Decision-Making:** Interdisciplinary decision-making can ensure that local community values are considered within decision-making and that decisions are made without privileging certain types of knowledge.
4. **Implement Integrated Assessments:**
Adopt frameworks that connect the state of natural assets with the delivery of ecosystem services. This will help decision-makers understand that the supply of some important marine goods and ecosystem services rely on maintaining marine and coastal environments in good condition.
5. **Include Evidence on Water Quality Regulation:** Ensure that decision-making processes account for marine and coastal ecosystems' water quality regulation services, highlighting the trade-offs between development and the disturbance of marine ecosystems that benefit water quality.

Funding:

The Diverse Marine Values project, funded by UK Research and Innovation and the Natural Environment Research Council (grant number NE/V017497/1), aims to integrate varied values into marine management, ensuring decisions are informed by comprehensive evidence and perspectives.

Glossary:

- **Natural capital** is the stock of renewable and non-renewable natural resources on earth (e.g., plants, animals, air, water, soils, and minerals) that combine to yield a flow of benefits or “services” to people.
- **Ecosystem services** are the contributions that ecosystems make to human well-being that depend on either biotic or abiotic parts of ecosystems.

The Diverse Marine Values project is led by an interdisciplinary team of researchers and partners

Project Partners: University of Portsmouth, University of Greenwich, Cardiff University, University of Liverpool, University College London, University of the Highlands and Islands, Marine Conservation Society, New Economics Foundation, Howell Marine Consulting, Ocean Conservation Trust, Company of Makers.

For more information on the Diverse Marine Values project, please visit:

<https://www.smmr.org.uk/funded-projects/integrating-diverse-values-into-marine-management/>

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