

Marine and coastal ecosystem services: why and how to value them

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Marine and coastal ecosystems provide a wide range of services to human society including supporting, regulating, cultural and provisioning services. These services influence human welfare both directly, through human use, and indirectly, via impacts on supporting and regulating services in other environments. Measurement of ecosystem services and their values to humans is rapidly becoming the principal means for communicating the impacts of ecological change on human well-being. But they are increasingly under threat from widespread and growing pressures on marine and coastal resources such as overfishing, water contamination, coastal habitat destruction, and general loss of biodiversity. The principal means for communicating the consequences of ecological change for human wellbeing is to document the impacts on ecosystem services.



This improves understanding of the importance to humans of coastal and marine ecosystems, informs decision making processes, and supports attempts to influence human behaviour. Impacts on ecosystem services can be examined in qualitative terms, by quantitative measurements, or through economic valuation. Economic valuation seeks to quantify the ways in which ecosystem services provide benefits to human populations, and expresses these values in monetary units that can be compared with other sources of value to society. Values can be estimated and expressed in monetary or non-monetary terms. Reliable and appropriate valuation and appraisal methods are needed to take these services into account. Valuation can be useful and/or relevant at all levels of governance, including strategic policy setting, project appraisals, decision making, day to day management, and communication with stakeholders. The choice of valuation method used in a practical situation can depend on governance scale, decision context, scientific understanding, and various other factors.

Why value marine services? The ultimate aims of defining and measuring the value of the natural environment are to better inform management choices, and/or influence human behaviour. There are two main types of reason for valuing ecosystem services:

- To assess the costs and benefits of an action or policy, as an aid to decision making;
- To improve understanding of the value of benefits to society from an ecosystem or series of linked ecosystems.

Ecosystem valuation can assist in a wide range of tasks, which includes demonstrating and communicating the importance of an ecosystem; guiding national development plans; policy, programme and project appraisal; setting priorities within a sector plan or across different sectors; green national and corporate accounting; setting a framework to establish market-based instruments such as taxes, charges, fees, fines, penalties, subsidies and incentives and tradable permit schemes and determining liability and compensation in environmental litigation.

Marine environments provide ecosystem services that can be classified as supporting: ecosystem functions that support and enable the maintenance and delivery of other services; regulating: natural regulation of ecosystem processes and natural cycles; cultural: benefits associated with experiences of natural environments; or provisioning: raw materials, food, energy.

These influence human welfare directly, through human use or experience of the service (these may be called ‘final services’); or indirectly, via impacts of supporting and regulating services on other services and environments (these may be called ‘intermediate’ services).

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