

# Scoping study on economic linkages and options for ecosystem valuation of deep-sea living marine resources and habitats in ABNJ

Summary of the current state of knowledge and further information needs for valuing deep-sea sponge ground ecosystem services

## Why was the study carried out and what did it involve?

This scoping study contributes to two major projects in the FAO Deep Seas Programme: the ABNJ Deep Seas Project and the SponGES project. The study contributes to Output 2.1.1 (Biological, ecological and economic analyses of deep-sea fisheries and associated biodiversity in the ABNJ are carried out, in consultation with stakeholders, to classify risks and threats and identify VMEs) of the ABNJ Deep Seas Project, and to Task 8.1 of Work Package 8 of the SponGES project (Support for economic valuation of the goods and services provided by sponge grounds).

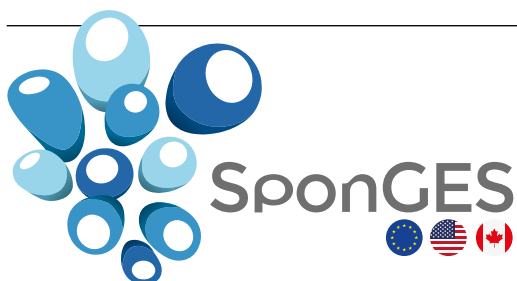
The scoping study was carried out to ascertain what information and data are available on the economic value of ABNJ ecosystem services, and to assess whether (and how) a quantitative/monetary valuation might be possible. Its objective was to **document and critically review current knowledge on deep-sea ecosystem-economic linkages, so as to identify needs, niches and options for undertaking a study to assess the economic value of ABNJ**

**deep-sea ecosystem services.** While the study considered sponges and sponge grounds alongside other deep-sea species and habitats, it did not focus solely on them.

## What is the current state of knowledge on the economic value of ecosystem services?

The study uncovered modest, and by no means comprehensive, literature on the economic value of ABNJ and deep-sea resources and habitats. Forty two documents were found which deal with the economic value of deep-sea ecosystem services in one way or another. Of these, 30 provide original monetary estimates, while 12 collate or synthesise information from other sources and/or deal generally (and non-quantitatively) with economic valuation in relation to deep-sea resources and habitats.

Overall, the **literature on the economic value of ABNJ and deep-sea ecosystem services remains limited in size and scope** (although, it should be emphasised, contains a number of extremely useful



and innovative papers). The majority of valuation studies are focused either on easily-measurable, commercial resource exploitation activities (such as fisheries, oil, gas and minerals) or seek to elicit people's stated preferences and perceptions of the recreational and non-use values associated with conserving marine biodiversity.

**Sponges represent a gap** in the valuation literature. There is virtually no quantitative information on either the ecosystem services associated with deep-sea sponge grounds or their monetary value. While several documents make very general statements about the high value of sponges in terms of their biotechnology potential, and (to a lesser extent) their role as feeding and breeding grounds for other marine species, they do not include monetary figures.

Most of the published studies that address the **commercial uses and potential of sponges tend not to deal with economic values**, and often do not separate out deep-sea habitats. While a number of publications provide estimates of the value of the marine biotechnology sector most present aggregated figures for the sector as a whole, not for specific habitats or species. In the course of the literature review, **only one monetary estimate was found which refers specifically to sponges**: in 2006, the global profits from the sale of a herpes drug, estimated at between US\$50-100 million a year. Similarly, those studies which refer to the economic importance of sponges as fisheries habitat, do not contain value estimates.







## What are the key information gaps and data needs for better decision-making?

It is clear that key knowledge gaps remain which serve as a barrier to fully-informed decision-making. Five particularly important unmet information needs and areas for further investigation are identified:

- ⚙️ Generating value information for **currently under-represented regions** of Africa, Asia, Latin America and, to a lesser extent, the Pacific;
  - ⚙️ Seeking to articulate economic values, dependencies and impacts as regards **ecosystem regulating and supporting services**;
  - ⚙️ Demonstrating approaches for the **Integrated economic-biophysical assessment** of ecosystem services;
  - ⚙️ Developing and applying methodologies for incorporating ecosystem valuation into the **planning and appraisal** of policies, investments, programmes and plans; and
  - ⚙️ Using valuation to identify **needs and opportunities for leveraging investments** in the conservation and sustainable use of key species, habitats or sites.
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## What is required to take ecosystem service valuation forward?

While the scoping study confirms that the issue of data availability is of great importance, it finds that the main constraint to the use and impact of valuation in deep-sea decision-making may not be the types and topics of data that are available per se, but rather the way in which valuation studies are designed and carried out, and the form in which they are presented and disseminated. It therefore concludes that a key unmet need – which relates to deep-sea resources and habitats generally, as well as to sponge grounds specifically – is the use of valuation to generate specific, targeted evidence that can be used to inform decision-making processes in the sectors that depend and impact most on deep-sea ecosystem services.

It is proposed that any valuation studies carried out under the ABNJ and SponGES projects should address this need. **Three options** for potential valuation studies are identified: (a) measuring the **gross value-added** from deep-sea resources and habitats to a particular site, stakeholder group, industry, sector or country; (b) undertaking an **integrated biophysical-economic assessment** of a priority deep-sea ecosystem regulating service; and (c) incorporating ecosystem values into a **real-world planning or appraisal process** for a specific deep-sea policy, investment, programme or management approach.

The exact information needs and data inputs required to take ecosystem service valuation forward as regards deep-sea sponges depends on which of these options is selected for further development. A number of overarching needs can however be identified:

- ⚙️ Data on the **economic footprint** of the industries and sectors that depend either directly or indirectly on the ecosystem services generated by sponge grounds (for example biotechnology or fisheries). There is a particular need for quantified estimates of the actual and potential amount of output, commercial production, income, employment and other economic indicators that can be attributed to sponge species and habitats;
- ⚙️ **Biophysical assessments** of the ecosystem services associated with deep-sea sponge grounds, including quantified dose-response relationships between ecosystem characteristics and status, the generation of specified services and their contribution towards particular outputs or production. In order to value ecosystem services, it is first necessary to know (and measure) what these services are, how they link to physical production and consumption processes, and what levels of use or offtake they are capable of supporting;
- ⚙️ Examples of **projects, investments or other developments that depend or impact on sponge grounds**, and which seek to appraise the economic viability, profitability or impacts of their activities. This might include, for example, cost-benefit analyses, investment appraisals or environmental impact assessments, or analyses of market research and potential.

### Sources

All photos courtesy of DFO, Canada

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