Collaborative scoping of ecosystem services in marine and coastal protected areas: The case of Arrábida Natural Park

Theme – 2. Natural resources, ecosystem services and environmental quality
Subtheme(s) – 2.3. Ecosystem services: debating, valuing, preserving and providing / 2.2. Natural resources: management, use and conservation.

Summary

With the widespread recognition of the importance of Ecosystem Services (ES), new approaches are needed to promote integration of stakeholders' perceptions on services provided by ecosystems. An innovative methodology is presented for collaborative scoping of ES in protected areas. This work emerged from a broader conceptual framework for valuing ES through a participatory and integrated platform with three phases: "setting the scene", "deepen understanding" and "value articulation". The paper addresses the implementation of the first phase through a participatory workshop. A stakeholder group was invited to collaboratively map the most important ES in the Arrábida Natural Park in Portugal, current threats and linkages with human wellbeing and the social, ecological and economic importance of the identified services. Results are analyzed in relation to the potential of the proposed participatory approach in fostering the production and integration of knowledge on ES values, as an input for policy and decision-making processes.

Extended Abstract

The concept of ecosystem services (ES) has been widely disseminated, promoting a growing discussion on the topic. This debate had lead to several contributions in different fields (e.g. theoretical underpinnings, identification and mapping of ES, monetary and non-monetary valuation approaches, among others) (Costanza et al., 1997; de Groot et al., 2002; MEA, 2005; O'Neill et al., 2008; Costanza et al., 2014). These on going research streams have been showing the importance of recognizing ES as a way to inform decision-making and to understand human wellbeing within planetary boundaries.

In the context of protected areas management, Potts et al. (2014), acknowledge that ES identification and valuation could help to get attention to the services provided by protected ecosystems. The recognition of the existence of some (hidden) ES to local stakeholders and visitors could inform the discussion on their link to human wellbeing and consequently help to acknowledge the need for protection. Approaches to management of protected areas evolved through time as a nature conservation instrument, from "island" to "network" and "landscape" and the more recent "socio-ecological" approach to management of these areas (Palomo et al., 2014). According to the latter vision, the complexity of the socio-ecological

interactions are recognised, and an interdisciplinary approach is needed to study the components and biophysical processes supporting human activities at different scales. This shows the importance of capturing and integrating ES valuation in decision-making processes, as a way to help protected areas management towards nature conservation, even beyond the jurisdictional boundaries of the protected landscape (Palomo et al., 2013).

Within this backdrop, the paper aims to answer the question: How to capture stakeholders' perceptions on marine and coastal ES? And how to collaboratively scope out ES threats and linkages to human wellbeing, and collect perceptions on the relative importance (economic, social and ecological) of the different ES in protected areas? To address these issues, we present an innovative participatory methodology to identify ES combining collaborative scoping methods.

This approach follows from the conceptual framework developed by Lopes and Videira (2013), which comprises three main stages, each one with different participatory tools, aiming to capture and to articulate the different ES values. The ultimate goal of the process is to support decision-making, which is feed in by stakeholders perceptions and scientific data through an improved methodology that promotes a more conscious and informed outcome (Lopes and Videira, 2013). The case study used to implement the scoping stage of this framework, involved the organisation of one workshop to which stakeholders were invited for eliciting the links between the ES provided by a coastal protected area and human wellbeing, as well as, identifying the threats placed upon these services.

The selected area was the Arrábida Natural Park (ANP), a protected area that exists since 1976. ANP has numerous biological, geological, floristic, archaeologies features of high and unique importance. The coastal protected area was enlarged to a contiguous marine protected area (Marine Park Luíz Saldanha), which was created in 1998 with an area of 53km^2. It belongs to European Network Natura 2000 and harbors more than 1000 species of marine fauna and flora (Vasconcelos et al., 2013).

Sixteen participants attended the workshop from different stakeholder groups such as public administration, research institutions, NGO and associations. Participants were divided in four working groups, each of them dealing with a category of services (i.e. provisioning, regulating, support and cultural). A series of four interactive exercises were guided by four research questions: a) *which are the ecosystem services that ANP provides?*; b) *which are the linkages between the ecosystem services and human well-being*?; c) *Which are the main threats to ecosystem services in the ANP?;* d) *Which are the perceived important services at the ecological, economic and social level?*

Participants built a list with the services provided by the park giving concrete examples. The results had shown that according to participants' perceptions, ANP is responsible for providing all the services represented in the four categories lists. Giving to participants a reduce list of services for each category asking for specific examples allowed to have a more reliable list, once each one had to think about the case study while exchanging ideas with the other group members.

After that they had related them with human wellbeing, which had indicated a strong linkage with support services (these services were connected in the exercise with all the human wellbeing components). This outcome is very interesting, revealing that participants were able to recognize support services as an important category responsible for the achievement of human well-being components.

Regarding the identified threats, "food" and "aesthetic values" were the ES with more threats. However, if we analyze the results in terms of categories of services, the support one was the most threatened category.

The voting for the most important services regarding social, economic and ecological importance allowed us to have a notion on the participants perceptions concerning the importance of specific ES and compare the outcome with the wellbeing and threat exercise. Cultural services had high attention, such as "recreation and ecotourism", however it was interesting to observe that the support services were well identified and discussed. If we desegregate the number of votes into the three possible categories of voting, we can see that provisioning services are more important in economic terms, the support services are more important ecologically and in terms of social importance the cultural services have the more number of votes.

These results were rich and diverse allowing to take lessons on the answers to the four questions and to feed the next stage of the conceptual framework where this workshop are integrated. This work advances the state of the art by presenting an innovating methodology for the identification of ES in protected areas. This autonomous approach, which can be integrated in a larger framework aims to address three issues in ES valuation. First, the stakeholders involvement in valuation processes (Gasparatos, 2010; Lopes and Videira, 2013), second, the identification of ES in protected areas as a way to preserve ecosystems (Potts et al., 2014) and third, the combination of the three values-domains when identifying stakeholders perceptions on the importance of ES (de Groot et al., 2002; Lopes and Videira, 2013; Martin-López et al., 2014).

With increasing calls for active involvement of stakeholders in the valuation of ES and in supporting decision-making processes, this approach proved to be an effective way to capture stakeholders perceptions on ES.

According to the participants evaluation, the methodology allows to facilitate discussions on the ES identification as well as the recognition of ES that were not recognized before. It also shows that participants had been truly involved in the workshop exercises, exchanging knowledge among them. The next step, which is already on going, is an online survey aiming to confront the group perceptions obtained through the workshop with individual perceptions about the found results.

By fostering the share of knowledge and experiences this methodology allows to capture intangible dimensions of some ES values, which are sometimes dismissed, despite their importance. The results had shown how the methodology could be effective highlighting the need of having qualitative information on ES valuation to support decision-making processes and do not focus only on quantitative outcomes.

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