

Sediment Related Ecosystem Services – A definition and mapping approach

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Introduction: The Ecosystem services approach is the main stream in environmental assessment policy-making. Sediments are present in every ecosystem in which water is involved. They team up to serve as basis for the ecosystem well-functioning. Conceptualizing sediment related ecosystem services aims to make a first approach into defining processes and functions of sediment related ecosystems that involve services in which humans have a direct or indirect benefit. Using the ecosystem services definition and with the help of mapping tools make easier to describe explicit ways to connect sediments related ecosystems with existing or potential services they provide, and make a conjunction between providers and users.

Methods: This definition of sediment related ecosystem services follows according to the illustration of the pathway from ecosystem structures and processes to human well-being, as presented in The Economics of Ecosystems and Biodiversity [1]. It uses the case study from the river Elb in terms of sediment management to implement the structure. First, recognising sediment related ecosystem structures and functions that lead to an ecosystem services; and second, recognising the beneficiaries and stakeholders that have interest in this service, are main steps in this formula. Mapping ecosystem services, serves to define internal and external limits and frontiers from each group and to create a bundle of spatial interrelations between each other, since ecosystems, ecosystem services and human interactions with the ecosystems are all spatially dependent.

Results: In one hand, a definition and mapping approach for sediment related ecosystem services based on the case study of the sediment management of the river Elb infer in a better understanding of the dynamic structure and relation between the sediments in an ecosystem and the interests that human well-being might have on it. Thus, to facilitate assessments and decisions that lead to a better management of sediment related ecosystems. On the other hand, this approach very much depends on available data. Trying to meet quality standards is a requisite, but this definition is always subjective and fragmentary.

Discussion: Defining Sediment related ecosystem services is an important issue, since it gives explicit and concrete outputs to questions that infer in decision making processes. It makes scientific and technical knowledge more reachable and understandable, but without forgetting that the focus given to sediments limit the focus in other aspects. Since the perfect assessment is impossible due to the complexity and the dynamism of ecosystems and humans needs and interest, this approach can only be considered as a possible best practice for specific situations.

References: [1] Sukdev et al.(2010a) *TEEB*