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Aquatic Ecosystems Services In Denmark – Spatial Mapping of Ecosystem Services and Creation of Green Economic Accounting

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ABSTRACT

Freshwater, marine- and coastal water ecosystems provide a range of provisioning, regulating, and cultural services, most of which are affected by nutrient loads to the water bodies. At the same time services can be utilized to reduce impacts on other services, e.g. utilizing the regulating services by wetland restoration and river meandering will influence the capacity of nutrient trapping and transformation in watersheds, and hereby improving recreational services. Improvements in ecosystem service provision can also be managed by reducing nutrient loads at source. The aim of this study is to map how the regulating and cultural ecosystem services vary spatially, as well as to model cost-efficient management strategies to maintain and improve these services. The assessment of economic values of the services presently provided by the aquatic ecosystems can also be used as an input to national and international attempts to build up green national accounts. We use a case study from one watershed to demonstrate how existing data and model outputs can be used to define cost-efficient management as well as providing input for the development of a green economic accounting system. Mapping and assessment of these ecosystems services and their values is one of the key actions of the EU Biodiversity Strategy to 2020 and one of the aims of this study is to feed into the development of the Danish assessments. At the same time the spatial mapping will be carried out to identify cost-efficient management of fresh- and marine ecosystems, linked to the needs for cost-efficient implementation of the Water Framework Directive and the Marine Strategy Directive.